ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Global Leadership

Safety and operational issues stemming from dramatic regional growth and intensifying environmental concerns have created challenging times for global aviation, bringing ICAO's important leadership role sharply into focus.

Also in this issue: New AFI Developments, Interview: Silvio Finkelstein, Of Stats and States, Language Proficiency Deadline, IATA FEGA Go-Teams, ICAO News and Announcements, IATA CEO Message.

Vol. 62, N° 4

ATNS knows Africa

TRAINING

VSAT

ADVANCED AIR TRAFFIC SYSTEMS

Whichever way you look at it

Responsible for approximately **10% of the world's airspace,** ATNS proudly manages more than **half a million** arrival and departure movements every year and is making **Cape to Cairo satellite communications** a reality. ATNS trains international aviation professionals, maintains **ISO 9001** accreditation and subscribes to **ICAO Standards and Recommended Practices.**

© MIRAH BRADT COMMUNICATIONS

THE ICAO JOURNAL
VOLUME 62, NUMBER 4, 2007

Editorial
ICAO External Relations
and Public Information Office
Tel: +01 (514) 954-8220
E-mail: journal@icao.int
Web Site: www.icao.int

Anthony Philbin Communications
Managing Editor: Anthony Philbin
Senior Editor: Robert Ronald
Tel: +01 (514) 886-7746
E-mail: info@philbin.ca
Web Site: www.philbin.ca

Production and Design

Bang Marketing
Stéphanie Kennan
Tel: +01 (514) 849-2264
E-mail: info@bang-marketing.com
Web Site: www.bang-marketing.com

ICAO Photographs: Gerry Ercolani

Advertising
FCM Communications Inc.
Yves Allard
Tel: +01 (450) 677-3535
Fax: +01 (450) 677-4445
E-mail: fcmcommunications@videotron.ca

Submissions
The *Journal* encourages submissions from interested individuals, organizations and States wishing to share updates, perspectives or analysis related to global civil aviation. For further information on submission deadlines and planned issue topics for future editions of the *ICAO Journal*, please forward your request to journal@icao.int.

Subscriptions and single copies
Yearly subscription (6 Issues per year) US $40. Single copies available for US $10. For subscription and sales information please contact the ICAO Document Sales Unit,
Tel: +01 (514) 954-8022
E-mail: sales@icao.int

Published in Montreal, Canada. ISSN 0018 8778.

The information published in the *ICAO Journal* was correct at time of printing. The opinions expressed are those of the authors alone and do not necessarily reflect the opinions of ICAO or its Member States.

Reproduction of articles in the *ICAO Journal* is encouraged. For permission, please forward your request to journal@icao.int. The *ICAO Journal* must be credited in any reproduction.

PRINTED BY ICAO

Contents

Leadership and Vision in Global Civil Aviation

www.icao.int

The International Civil Aviation Organization

You Hold in Your Hands the New ICAO Journal

The flagship publication of the Organization has been completely redesigned, from cover to cover. Its content will focus increasingly on the Organization's programmes, policies and activities designed to assist its 190 members and all stakeholders of the world aviation community in maintaining the highest levels of safety, security, efficiency and sustainability for the global air transport system.

With each issue, you will also discover how ICAO is transforming itself into a results-oriented and performance-based organization, in line with fundamental changes in global aviation and the evolving requirements of all of our constituents.

The publication will also remain open to contributions from States, aviation organizations, industry and selected bodies who have a critical role to play in ensuring the technical and operational integrity of the world's airways and supporting systems.

This is a reflection of the symbiotic relationship between ICAO and the air transport industry. Manufacturers and service providers must design and build products that meet globally-recognized ICAO standards, all the while fuelling economic activity in terms of job creation and new products and services. At the same time, ICAO benefits from industry participation in its work, through essential input in the formulation of regulations and procedures that enhance the safe and orderly development of international civil aviation.

In an electronic age the question inevitably arises as to the value of printed publications. Experience has shown that innovations do not necessarily replace traditional means of communication, but rather complement them. In many parts of the world and within many aviation organizations, printed materials remain essential, regardless of the penetration level of Internet and related technologies. To maximize ICAO's global role and message, it is therefore important to make use of new information and communications tools as they become available, while remaining mindful of the continuing need for traditional publication vehicles.

ICAO Journal is currently disseminated to more than 16,200 recipients and subscribers worldwide, including all of the world's civil aviation administrations, senior airline, airport and air navigation service provider officials, as well as decision makers in related fields. I sincerely hope that you will find the new *ICAO Journal* both informative and pertinent. ■

Dr. Taïeb Chérif
ICAO Secretary General

Introducing the New ICAO Journal

ICAO IS RESPONDING TO THE GLOBAL CHANGES IN CIVIL AVIATION AND THE NEED TO ALIGN ITSELF AS A MORE STREAMLINED ORGANIZATION, HIGHLIGHTING ITS IMPORTANT LEADERSHIP ROLE IN ALL AREAS OF AIR TRANSPORT ACTIVITY. AS THE ORGANIZATION'S FLAGSHIP PUBLICATION, THE *ICAO JOURNAL* HAS A NEW LOOK AND A NEW FOCUS TO HELP IT REFLECT THE IMPORTANT CHANGES WITHIN ICAO AND IN THE AIR TRANSPORT INDUSTRY AS A WHOLE.

THE NEW *ICAO JOURNAL* PLACES MORE IMPORTANCE ON THE ROLE AND ACTIVITIES OF THE ORGANIZATION, WHILE CONTINUING TO PROVIDE IMPORTANT UPDATES ON THE STATE OF INTERNATIONAL AIR TRANSPORT, CHANGES TO ITS REGULATORY FRAMEWORK, AND GLOBAL AND REGIONAL INITIATIVES WHERE ICAO IS EXERCISING ITS LEADERSHIP.

The redesign of the new-look *ICAO Journal* has been produced in conjunction with Montreal marketing and communications specialists Bang Marketing (www.bang-marketing.com).

Cover image
As the Organization's flagship publication, the new *ICAO Journal* cover puts ICAO front and centre. Each cover will provide focus on the key area of ICAO and the industry being highlighted in that issue. Most obvious to readers will be that the word "Journal" no longer appears on the masthead, although it is still part of the magazine's title and thus retains its important continuity with past issues and volumes. This decision was made to help reflect the fact that the new *ICAO Journal* has a new focus and will be less exclusively technical than in the past, providing more information on the ICAO personalities and sections that produce the results, as much as on the results themselves.

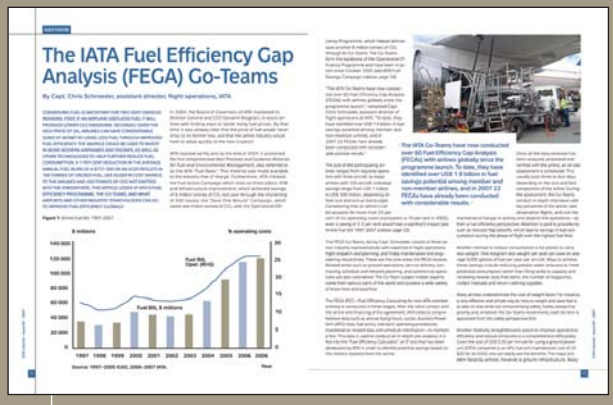
ICAO Six Areas Review

ICAO focuses on six key areas: safety; security; environmental protection; efficiency; continuity, and; the rule of law. In the lead-up to the 36th Session of the ICAO Assembly, this issue reviews four of those areas and the topics current to each in a single introductory review. In consecutive issues these areas will be given their own re-occurring section where readers will find the specific news and features that pertain to each.

New Section: ICAO Implementation

In line with its new focus, the *ICAO Journal* will include a regular section on the activities of the new Implementation Support and Development (ISD) Branch, created to facilitate and coordinate the provision of assistance to States in meeting their aviation safety and security obligations.

EAD feature
Feature articles, such as this issue's focus on the important role of the ICAO Economic Analyses and Databases (EAD) Section, will provide a closer look at the people and processes behind the scenes that help ICAO maintain its global perspective and representation.



IATA Guest Feature
Additional international and regional aviation organizations (in this issue, IATA) will be given a place and a voice in each *ICAO Journal* to ensure that every voice and every viewpoint has a means of identifying and communicating its important perspective to the *Journal's* global readership.

News in Brief

The News in Brief section will be your place to find news on Council appointments and decisions, convention ratifications updates and other more day-to-day information on the workings of the Organization and the activities of its Member States.

As Host Country of the International Civil Aviation Organization (ICAO) and member of the ICAO Council, Canada has been working with the Secretary General to create the new ICAO Journal, reflecting the Organization's successful renewal in the 21st century.

During the Quebec Conference in 1943, President Roosevelt and Prime Minister Churchill gave voice to the idea of a multilateral organization to oversee international civil aviation. Since 1944, ICAO has valued the improvement of security and safety as well as environmental protection. The ICAO Journal will help us better understand these issues in the coming years.

Today, the climate of uncertainty related to terrorism is augmented by the economic ups and downs of the aviation industry and its markets. Canada supports ICAO's initiative of extending the Universal Safety Oversight Audit Programme by encouraging contracting States to make their audit reports public. Canada's report may be found on the Transport Canada Web site, and I would encourage other contracting States to post their reports.

In the field of civil aviation, ICAO plays the lead role with regard to environmental issues. Soon contracting States will be called upon to structure their approach to the environment, and Canada is working actively in this area in accordance with the mandate from the international community to protect the environment while also protecting economic viability, and civil aviation safety and security.

I would like to emphasize Canada's commitment to modernizing bilateral aviation agreements. Under our new Blue Sky policy, Canada is pursuing liberalized agreements where these reflect our global interests. In future, an increasing number of Blue Sky agreements will allow carriers to provide more flights to more destinations, thus creating more choice for users. Our new policy will produce tangible benefits and give passengers improved services.

Canada will continue to work with ICAO to further mutual goals such as the improvement of security, safety and environmental protection.

Hon. Lawrence Cannon
Minister of Transport, Infrastructure and Communities
Ottawa, September 2007

Cranfield UNIVERSITY

Enhancing knowledge in air transport

Cranfield University's air transport capability is second to none. Our research activities, postgraduate programmes and short courses cover key areas including: airline business developments; airport economics and operation; aircraft operations and planning; and safety and accident investigation.

Our forthcoming programme of popular continuing professional development courses includes:

International Air Law and Regulation
17-21 September 2007

Air Transport Management
5-9 November 2007

Further information is available from:
W: www.cranfield.ac.uk/soe/cpd
E: shortcourse@cranfield.ac.uk
T: +44 (0) 1234 754176
F: +44 (0) 1234 751206

Global Aviation Leadership

Aviation has recently experienced a phenomenal period of growth that has created new opportunities and new challenges for States and air transport organizations. Worldwide, the total number of annual passengers has grown by 46 per cent in the past ten years, as the number of passengers flying climbed from 1.457 to 2.128 billion per year. Freight tonne-kilometre figures show an almost identical rate of increase.

The degree to which we collectively manage this growth effectively, uniformly and consistently in all countries and regions will determine the safety, security, sustainability and efficiency of the global air transport system for the coming decades.

ICAO has sharpened its focus in how it assists its 190 Member States to strive for the new benchmarks of 21st century civil aviation: optimum safety and security; the continued progressive, worldwide liberalization of air transport; a globally interoperable, harmonized and seamless air traffic management system; maximum compatibility between the safe and orderly development of civil aviation and the quality of the environment; and further development of a unified global legal framework. All are top priorities for the Organization and the industry as we assess our collective horizons.

Under the leadership of the Secretary General, ICAO began implementing its first ever Business Plan in 2005. The ultimate goal of this new way of doing business is to increase the effectiveness and efficiency of the Organization, to become even more performance-based and results-oriented, and to introduce working methods that will lead to increased efficiency while making prudent use of limited resources.

The Business Plan promotes a higher level of functional integration between Headquarters and the Regional Offices. It is an excellent coordination instrument for programmes and activities, and it is dynamic. A built-in review process will ensure that the Plan is realigned periodically with the changing external environment and critical developments in the air transport world.

At the heart of the Business Plan are six strategic objectives derived from the Organization's vision and mission of providing for the safe, secure and sustainable development of civil aviation through cooperation amongst its Member States. The following pages report on the evolution of the past three years in four of these six areas, against the backdrop of the strategic objectives. Objective E—Continuity—deals largely with aviation medicine and the spread of communicable diseases, subjects covered in the interview with Dr. Silvio Finkelstein. Finally, the next issue of the *Journal* will feature the Legal Bureau of ICAO, and all areas will be featured regularly in upcoming *Journal* issues to keep readers abreast of the latest developments in each.

A: Enhance global civil aviation safety

SAFETY IS IMPROVING GLOBALLY. IN SPITE OF A LARGE INCREASE IN TRAFFIC, THE ABSOLUTE NUMBER OF ACCIDENTS HAS REMAINED STABLE AND THERE IS EVEN A TENDENCY TOWARDS AN OVERALL DECREASE. YET THIS IS NOT UNIFORM AROUND THE WORLD. THE AVIATION COMMUNITY MUST FOCUS ON AREAS OF THE WORLD THAT ARE MOST CHALLENGING TO SAFETY. IT IS A MORAL IMPERATIVE IN A CONTEXT OF INCREASED OPENNESS AND COOPERATION. IT IS ALSO A SMART THING TO DO, AS RELATIVELY LIMITED EFFORT CAN YIELD SIGNIFICANT IMPROVEMENTS IN THE LEVEL OF SAFETY IN THE REGIONS UNDER CONSIDERATION. MOREOVER, IT WOULD IMPACT POSITIVELY THE WORLDWIDE SAFETY LEVEL.

OVER THE PAST THREE YEARS, INCREASED TRANSPARENCY, GROWING POLITICAL WILL AND A PROACTIVE, COOPERATIVE APPROACH BY ICAO AND MAJOR AVIATION STAKEHOLDERS HAVE FOCUSSED ON PERFORMANCE AND RESULTS.

A milestone was reached with the Directors General of Civil Aviation Conference on a Global Strategy for Aviation Safety (DGCA/06) held at ICAO Headquarters in March 2006. Participants from 153 Contracting States and 26 international organizations identified ways to make significant improvements in an assertive, coordinated and transparent manner.

The Conference reaffirmed the critical importance of transparency and the sharing of safety-related information as fundamental tenets of a safe air transport system. Participants agreed unanimously that results of audits carried out under the ICAO Universal Safety Oversight Audit Programme (USOAP) should be posted on the Organization's public web site, with the consent of States audited, no later than March 2008. It was felt that such openness would encourage States to correct outstanding deficiencies more quickly and make it easier for States and donors to provide those in need with the required financial or human resources. This concrete example of transparency and sharing of safety-related information is also essential to make available data necessary to support the implementation of Safety Management Systems, another recommendation of the Conference.

The Conference also issued a Declaration of high-level principles and targeted actions for further improvements to aviation safety. Specifically, it called upon States and industry to closely coordinate their safety initiatives with ICAO in order to avoid duplication and related inefficiencies in the implementation of global safety initiatives.

The directives were quickly heeded and led to the Global Aviation Safety Roadmap—prepared by the Industry Safety Strategy Group (ISSG) in close cooperation with ICAO. The Roadmap stresses partnership among all stakeholders, including States, regulators, aircraft and airport operators, air traffic service providers, aircraft manufacturers, international organizations and safety organizations. It clearly defines roles played by the regulatory and industry elements, and presents a common frame of reference using 12 focus areas and guidance on how to address them.

The Roadmap was subsequently integrated into the ICAO Global Aviation Safety Plan (GASP). Together, the two documents are a unique and pragmatic resource for maintaining and improving safety worldwide. In effect, the GASP can be seen as a proactive planning methodology for ICAO, States, regions and the industry to fulfil, in a complementary manner, the requirements of the focus areas listed in the Roadmap. The GASP also establishes a coordination mechanism to ensure that the Roadmap and the Plan are kept up-to-date in a synchronized manner.

Meeting the Global Safety Challenge

The overall challenge for aviation safety is to drive an already low accident rate even lower, according to three targets for 2008–2011 set by ICAO: 1) to reduce the number of fatal accidents and fatalities worldwide irrespective of the volume of air traffic; 2) to achieve a significant decrease in accident rates, particularly in regions where these remain high, and; 3) to ensure that no single ICAO region shall have an accident rate more than twice the worldwide rate by the end of 2011—based on a five-year sliding average.

Global safety initiatives (GSIs) have been incorporated into the GASP to support the overall implementation of these safety objectives. GSIs are interrelated and each refers to one of the focus areas of the Roadmap. The table on page 9 details the relevant GSIs applicable to ICAO, States, regions and the industry at large.

The attainment of a safe system is the highest priority for air transport. With the tremendous efforts being made by all stakeholders, as markets expand and growth continues unabated, ICAO continues to provide increased global leadership and coordination through the GASP and support for other safety initiatives. Transparency, political will and a proactive approach, coalescing under a spirit of global cooperation represent our best guarantee for success for reaching our common safety goals.

Global Safety Initiatives Incorporated into ICAO's Global Aviation Safety Plan

For ICAO and States

GSI-1: CONSISTENT IMPLEMENTATION OF INTERNATIONAL STANDARDS AND INDUSTRY PRACTICES

- **Scope:** Full implementation of applicable ICAO SARPs and industry best practices.
- **Strategy:** Assessment of compliance through USOAP or equivalent means. Establish action plans to reach compliance and provide coordinated international support where necessary. If necessary, use coordinated international pressure on those unwilling to comply.

GSI-2: CONSISTENT REGULATORY OVERSIGHT

- **Scope:** Each State is in a position to objectively evaluate any given safety critical aviation activity within its jurisdiction and require that the activity adhere to standards designed to ensure an acceptable level of safety.
- **Strategy:** States to ensure that their Regulatory Authority is independent, competent and adequately funded, and that they establish an independent mechanism to monitor the Authority's competency.

GSI-3: EFFECTIVE ERRORS AND INCIDENT REPORTING

- **Scope:** A free flow of data exists that is required to assess aviation system safety on a continuous basis and to correct deficiencies when warranted.
- **Strategy:** States to introduce legislative changes to support the "just culture," encourage open reporting systems, and protect data collected solely for the purpose of improving safety. Set up regional/international date reporting system.

GSI-4: EFFECTIVE INCIDENT AND ACCIDENT INVESTIGATION

- **Scope:** Accident or incident investigations provide the opportunity for an in-depth examination of both the causal factors leading up to the particular event and the broader questions concerning the underlying safety of an entire operation.
- **Strategy:** Implement Annex 13 and ensure an adequately-funded, professionally-trained, independent and impartial investigative body. Protect and share safety data for accident prevention and not assignment of blame.

For ICAO, States and Regions

GSI-5: CONSISTENT COORDINATION OF REGIONAL PROGRAMMES

- **Scope:** While regional differences will dictate different implementations of best practices at different levels of maturity, there is much that can be gained by sharing the experience between regions.
- **Strategy:** Design regional mechanisms, or build on existing ones, to foster consistency and prioritize action.

For Industry

GSI-6: EFFECTIVE ERROR AND INCIDENT REPORTING AND ANALYSIS IN THE INDUSTRY

- **Scope:** The development and maintenance of a "just culture" is one of the primary means available to industry to understand where the hazards and risks lie within an organization.
- **Strategy:** Industry commits to a "just culture" of reporting without fear of reprimand. Share incident/error databases across industry.

GSI-7: CONSISTENT USE OF SAFETY MANAGEMENT SYSTEMS (SMS)

- **Scope:** A systematic management of the risks associated with flight operations, airport ground operations, air traffic management and aircraft engineering or maintenance activities is essential to achieve high levels of safety performance.
- **Strategy:** SMS mandated across all sectors and disciplines; incorporate SMS in audit processes.

GSI-8: CONSISTENT COMPLIANCE WITH REGULATORY REQUIREMENTS

- **Scope:** The attainment of a safe system requires that industry complies with State regulations. The main responsibility for compliance rests with industry, which has a legal, commercial and moral obligation to ensure that operations are conducted in accordance with the regulations.
- **Strategy:** Independent assessment and regular audits to ensure full compliance across the industry.

GSI-9: CONSISTENT ADOPTION OF INDUSTRY BEST PRACTICES

- **Scope:** Best practices, which represent the application of lessons learned globally by industry, are adopted by individual organizations in a timely manner.
- **Strategy:** Effective structures for maintaining knowledge and identifying future developments of best practices.

GSI-10: ALIGNMENT OF INDUSTRY SAFETY STRATEGIES

- **Scope:** The efforts of all industry stakeholders to improve aviation safety at the local, State and regional levels are more effective at a global level if they are well aligned and based on shared goals and methods.
- **Strategy:** Design a mechanism for the coordination, sharing and alignment of safety strategies.

GSI-11: SUFFICIENT NUMBER OF QUALIFIED PERSONNEL

- **Scope:** Industry and regulatory authorities ensure that they have access to a sufficient number of qualified staff to support their activities.
- **Strategy:** Establish a process for ensuring a level of qualified personnel commensurate with the level of activity and growth of commercial aviation.

GSI-12: USE OF TECHNOLOGY TO ENHANCE SAFETY.

- **Scope:** Technology advances that contribute significantly to improvements in safety are implemented.
- **Strategy:** Industry works together to identify areas where technology might provide significant safety benefits. Technology gaps are identified and measures taken to close them.

B: Enhance global civil aviation security

AVIATION SECURITY STATISTICS FOR THE PAST FEW YEARS POINT TO A GLOBAL AIR TRANSPORT SYSTEM THAT IS AS SECURE AS IT HAS EVEN BEEN FOR AIR TRAVELLERS, IN SPITE OF THE GROWTH AND INCREASING COMPLEXITY OF OPERATIONS. BETWEEN 2004 AND 2006, THERE WERE FOUR SEIZURES OF AIRCRAFT ON AN ESTIMATED TOTAL OF 75 MILLION FLIGHTS.

BEYOND A STRONG REGULATORY FRAMEWORK OF ICAO STANDARDS AND POLICIES, THIS PERFORMANCE CAN LARGELY BE ATTRIBUTED TO THE MYRIAD SECURITY MEASURES IMPLEMENTED BY STATES, ENFORCEMENT AGENCIES, AIRPORT AUTHORITIES AND OTHER CONCERNED PARTIES SINCE THE EVENTS OF 11 SEPTEMBER 2001. TOGETHER, THESE INITIATIVES HAVE THWARTED ACTS OF UNLAWFUL INTERFERENCE THAT WOULD OTHERWISE HAVE BEEN SUCCESSFUL IN WEAKENING THE INTEGRITY OF INTERNATIONAL CIVIL AVIATION.

At the same time, however, events such as the alleged terrorist plot in the United Kingdom in August 2006, potentially involving liquids used as explosives, are timely reminders of the remaining vulnerability of the system and of the need for constant vigilance at all contact points where perpetrators can slip through the security net.

At stake are lives, those of passengers, of crews and potentially of bystanders on the ground. Of additional concern is public confidence in air travel, inconvenience for passengers and considerable costs to airlines and airport stakeholders when security measures are poorly or inconsistently implemented. Security must not become an impediment to growth, yet it must recognize the fundamental purpose of air travel—getting people from departure to destination safely.

This purpose increases the challenge for governments, who must balance the need for maintaining and encouraging anti-terrorist measures with the development of solutions that maintain the efficiency and effectiveness of the air transport sector. Responses must be regularly adapted and reconsidered in the face of advances in security-related methods and technologies, as well as new and emerging threats.

In February 2002, the ICAO High-level Ministerial conference on aviation security adopted a Plan of Action for Strengthening Aviation Security in an effort to help States and industry address all forms of aviation security issues. The plan includes a Universal Security Audit Programme to evaluate the level of implementation of security standards and recommend remedial action to correct deficiencies.

Last year, ICAO aviation security audit teams completed 46 audits of States and their primary international airports, bringing the total number of audited States to 151, well on course for auditing all 190 States by the end of 2007. In addition, 45 follow-up visits were conducted to validate the implementation of State corrective action plans. Auditor training courses to certify aviation security experts brought the total number of certified aviation security auditors to 141, representing 59 States from all of the ICAO regions.

The Plan of Action also includes complementary activities such as new standards for electronic passports with biometric identification. Again last year, the two-volume, sixth edition of Doc 9303, Part 1, containing the ePassport technical standards was published. The ePassport heralds a global revolution in the issuance of travel documents, inspection of people and identity management. Passport and ID inspection systems used by airlines and border control agencies at airports will be substantially upgraded to enable more precise matching of documents to people, authentication of data in the documents, and more efficient processing of travellers at checkpoints. The ePassport also offers substantial benefits by providing a more sophisticated means to confirm that

the passport is authentic and that it belongs to the rightful holder, without jeopardizing privacy. By the end of 2006, over 30 Member States had begun issuing ePassports to their citizens. Proactive measures are being taken to respond to new and emerging threats to aviation security.

Above all, ICAO is committed to rapid, effective and cooperative action. For example, within days of the alleged terrorist plot in the United Kingdom, ICAO brought together States, law enforcement agencies and industry representatives to develop an effective response. The Organization issued a series of interim measures concerning this new kind of explosive, for implementation no later than 1 March 2007, and it is currently developing permanent guidelines and a revised list of items which may not be brought on board aircraft.

This proactive approach is helping States identify root problems rather than simply providing programmes and prescriptive solutions. In cases where a State has not implemented an action plan to correct deficiencies, ICAO will work with the State to fully understand why it has not been able to correct a situation, leading to the resolution of the problem.

This will be the role of the new Implementation Support and Development Branch, created on 15 June 2007. The primary objectives of the ISD, which assists both the safety and security areas, are to: support Member States that have been identified by the ICAO audit programmes as having significant deficiencies in the implementation of their aviation safety and security obligations; facilitate and coordinate the provision of assistance provided by States, industry, international financial institutions and other stakeholders, and; participate in safety and security implementation support and development activities aimed at enhancing the capabilities of States to meet their aviation safety and security obligations.

The ISD's mandate is based on the observation that problems identified through both safety and security audits are fundamentally the same: namely a lack of proper legislation, regulations and infrastructure, as well as the ability to retain qualified personnel. ISD will build on and better coordinate support already available from long-standing ICAO programmes.

ISD works with States to analyse five basic areas necessary for building an effective regulatory structure:

1) **A State must adopt and enforce the required civil aviation legislation that incorporates all of the responsibilities contained in the Chicago Convention for the civil aviation administration and all components of the national air transport system.**

2) **There must be a comprehensive regulatory framework derived from the Annexes to the Chicago Convention, adjusted to the national requirements of a particular country.**

3) **A well-funded and clearly mandated civil aviation authority capable of enacting and enforcing the State's aviation regulations.**

4) **Adequate personnel policies must be developed to ensure that civil aviation staff qualifications and competencies are maintained and renewed.**

5) **Local authorities must be provided with current and comprehensive information on safety and security issues and processes from around the world.**

Once these five basic elements have been scrutinized, and the proper corrective measures identified and implemented, a State is in a position to carry out the remaining two elements of an effective oversight function:

1) **Certify specific components of the air transport system and ensure their proper functioning through the implementation of appropriate supervision.**

2) **Address deficiencies in an efficient and long-term manner.**

Whether it's through new implementation standards and initiatives as outlined above, or any of the other important work now being undertaken with States and the private sector, a secure and reliable air transport system remains a fundamental concern for ICAO. The successes that have been achieved since 2001 are significant in the sense that the fundamental perception of civil aviation as the safest and most effective means of public transportation remains intact, but, as with all safety- and security-related issues, continued vigilance is essential.

C: Minimize the adverse effect of global civil aviation on the environment

LEADERSHIP IN GLOBAL AFFAIRS MAY TODAY BE BEST DEFINED BY DECISION MAKING NOT ONLY BASED ON SOUND TECHNOLOGICAL ACUMEN, CULTURAL SENSITIVITY AND MARKET AWARENESS, BUT INCREASINGLY BY THE CAPACITY TO FULLY COMPREHEND THE GLOBAL THREATS TO PLANETARY, SOCIAL AND COMMERCIAL SYSTEMS RESULTING FROM INACTION IN DEALING WITH ENVIRONMENTAL ISSUES.

AS HAS BEEN DEMONSTRATED MANY TIMES IN THE PAST, ADDRESSING THESE CHALLENGES SUCCESSFULLY REQUIRES CREATIVE PROBLEM SOLVING, WILLINGNESS TO COMPROMISE AND A SHARED POLITICAL MOTIVATION. THIS IS NOT AN EASY TASK. AIR TRANSPORT, WITH ITS UNIQUELY COOPERATIVE HISTORY AND STRUCTURE, HOLDS THE POTENTIAL TO BECOME A BEACON OF ENVIRONMENTAL PARTNERSHIP, AWARENESS AND ACHIEVEMENT AS IT COMES TO GRIPS WITH ONE OF THE GREATEST CHALLENGES IT HAS FACED.

Given the findings (now at 90 per cent certainty) from the Intergovernmental Panel on Climate Change (IPCC) that human activity is a contributor to global warming, and in light of the fact that the first commitment period of the Kyoto Protocol will expire in 2012, the next few years are a critical moment for decisions and action and present a unique opportunity for ICAO, in cooperation with its Member States and the main aviation stakeholders, to identify how international aviation might participate in a future programme.

Over the past decade, especially, there has been a substantial evolution in our common understanding of the impact of aviation on climate change. The 1999 *Special Report on Aviation and the Atmosphere* developed by the IPCC, as well as the recently published *IPCC Fourth Assessment Report* (4AR), have shed light on our understanding and provided best estimates of the contribution from aviation to climate change. From these reports, we learn that aircraft currently contribute about 2 per cent of man-made carbon dioxide (CO_2) emissions, and like other sources also emit other gases and particulates affecting climate. New aircraft are 70 per cent more fuel efficient than four decades ago, yet total fuel consumption is rising with the dramatic growth of aviation traffic in many regions of the world. Aviation's carbon footprint is forecasted to continue to grow in the future.

At the last meeting of ICAO's Committee on Aviation Environmental Protection (CAEP/7), held in February 2007, it was evident that environmental concerns now permeate the planning and actions of all global aviation stakeholders. Not only was there marked progress on both noise and emissions issues at the event, but a pronounced realization was evident that solutions must and will come from the aviation sector.

CAEP/7, which concludes three years of intense work by the aviation community under the leadership of ICAO, laid the groundwork for consensus on a number of critical areas and represents a fitting snapshot of where we stand in terms of the major efforts to minimize the impact of aviation on the environment.

Aircraft Emissions

Although enhancements were made to specific measures to address aircraft noise, the main focus and achievements of the meeting was on aircraft emissions.

Defining Nitrogen Oxide (NO_x) Goals

The first ICAO standard for NO_x was adopted in 1981 and made progressively more stringent through the years. The latest standard in 2004 will be applicable to new engines certified after 2008 and is 12 per cent lower than the existing standard. CAEP/8 will review the NO_x standard once more during its work programme cycle ending in 2010.

To complement the standard-setting process, an important development of CAEP/7 was the introduction of medium and long range goals in the development of technologies to control NO_x. At the request of CAEP/7, a panel of independent experts assessed the industry's ability to reduce NO_x emissions at source, provided information on possible trends in future emissions reduction over the long-term, and considered possibilities for improvement.

Using a Technology Readiness Level (TRL) scale, the panel developed medium- and long-term technology goals for NO_x

that could offer the industry more clearly defined objectives on a longer planning horizon. A medium-term NO_x goal refers to the level of emissions produced by a specific engine thrust category in service in ten years' time—TRL 6. The estimated reduction was set at 45 per cent from current standards by 2016. A long-term NO_x goal refers to an improvement of engine emissions performance in over 20 years—TRL 2. It is anticipated that by 2026 a 60 per cent reduction from current standards would be attainable.

Local Air Quality (LAQ)

With regards to LAQ at airports, CAEP/7 proposed guidance to States in implementing best practices and in assessing and quantifying airport source emissions. This guidance manual would consist of three parts. The first section, available on the ICAO web site, helps users create inventories of aircraft and airport source emissions and will contain background information on the regulatory context, drivers for addressing local air quality at airports, and identify how aircraft source emissions contribute to total emissions measured and modelled around airports. The second section, dedicated to dispersion modelling and airport air quality measurement, should be ready by 2010. The third section will address mitigation and interrelationships.

Operational Measures

Efficient management of aircraft operations helps reduce delays and optimize routing and, consequently, fuel burn and associated emissions. Studies suggest that improvements in air traffic management could help improve overall efficiency by 6 to 12 per cent, and that the potential for reducing fuel burn and emissions by further optimization of other operational measures, such as aircraft speed, aircraft weight, etc., is on the order of 6 per cent. In 2003, ICAO published guidance material on the subject for airports, airlines and other stakeholders and during CAEP/7 the third workshop to promote these measures was held at ICAO Headquarters. The CAEP/7 meeting also produced initial studies on the environmental benefits of the use of CDAs (continuous descent arrivals), basic rules of thumb for assessing the environmental benefits of RVSMs (reduced vertical separation minima) and a new ICAO circular on noise abatement departure procedures (NADP) was developed to provide information on their noise and emissions (NO_x and CO_2/fuel effects).

Market-based Measures: Emissions Trading

Despite the fact that improvements in technology and more efficient air traffic management solutions hold promise for additional emissions reductions in the future, market-based solutions are also an important part of this solution.

CAEP/7 proposed guidance for incorporating international aviation emissions into national emissions trading schemes, consistent with the United Nations Framework Convention on Climate Change process. The guidance focuses on those aspects of emissions trading related to aviation-specific issues and provides preferred options for the elements of various trading systems. It proposes that:

- aircraft operators be the accountable international aviation entity for purposes of emissions trading;
- obligations be based upon aggregate emissions from all international flights performed by each aircraft operator included in the scheme;
- States, in applying an inclusion threshold, consider aggregate air transport activity (e.g., CO_2 emissions) and/or aircraft weight as the basis for inclusion;
- States start with an emissions trading scheme that includes CO_2 alone;
- States apply the Inter-governmental Panel on Climate Change definition of international and domestic emissions for the purpose of accounting for greenhouse gas emissions as applied to civil aviation;
- States will need to put in place an accounting arrangement that ensures that emissions from international aviation are counted separately and not against the specific reduction targets that States may have under the Kyoto Protocol;
- Regarding trading units, States will need to consider economic efficiency, environmental integrity, as well as equity and competitiveness when making a choice.

On the question of geographic scope, the guidance recommends that States take into account an ICAO Council request that CAEP include the different options to geographic scope describing their advantages and disadvantages, start to address the integration of foreign aircraft operators under a mutually agreed basis, and continue to analyze further options. In adopting this guidance material, the ICAO Council decided that the guidance should be published as a draft guidance and should include an introduction emphasizing that the majority of the ICAO Council members favoured a mutually agreed approach.

The next issue of the *Journal* will report on the outcome of the discussions at the 36th Session of the ICAO Assembly, which will set the ground for participation of the aviation sector in the global effort on environmental protection.

D: Enhance the efficiency of aviation operations

THE NUMBER OF AIRCRAFT MOVEMENTS AROUND THE WORLD IS INCREASING CONSISTENTLY, IN LINE WITH THE SUSTAINED GROWTH IN PASSENGER AND CARGO TRAFFIC, AS WELL AS BUSINESS AND GENERAL AVIATION. THIS IS PARTICULARLY TRUE IN DENSELY POPULATED AREAS WHERE CONGESTION HAS BECOME A MAJOR SAFETY, OPERATIONAL AND ENVIRONMENTAL CONCERN.

THE ISSUE WAS ADDRESSED AT THE VERY SUCCESSFUL ELEVENTH AIR NAVIGATION CONFERENCE (AN-CONF/11) HELD AT ICAO IN 2003. THE CONFERENCE ENDORSED THE GLOBAL AIR TRAFFIC MANAGEMENT OPERATIONAL CONCEPT, THE FIRST TRULY COMMON VISION FORMULATED JOINTLY BY ALL STAKEHOLDERS OF THE WORLD AVIATION COMMUNITY FOR AN INTEGRATED AND GLOBALLY HARMONIZED AIR TRAFFIC MANAGEMENT (ATM) SYSTEM, WITH A PLANNING HORIZON UP TO AND BEYOND THE YEAR 2025. IN ESSENCE, THE CONCEPT AIMS AT THE IMPLEMENTATION OF AN INTEROPERABLE GLOBAL ATM SYSTEM THAT WOULD APPLY TO ALL USERS DURING ALL PHASES OF FLIGHT AND MEET AGREED LEVELS OF SAFETY, PROVIDE FOR OPTIMUM ECONOMIC OPERATIONS, BE ENVIRONMENTALLY SUSTAINABLE AND MEET NATIONAL SECURITY REQUIREMENTS. THE OPERATIONAL CONCEPT OUTLINES A TOTAL SYSTEM PERFORMANCE FRAMEWORK TO ACHIEVE DEFINED OBJECTIVES.

Since then, a number of initiatives and decisions have reaffirmed the role of ICAO as the driving force in the implementation of harmonized air traffic management systems and performance-based efficiency improvements. For its part, the aviation community must respond accordingly when designing, planning, implementing and operating the global air navigation system in order to respond to expectations linked to safety, efficiency, access and equity, capacity, global interoperability, cost-effectiveness, security and protection of the environment.

A major innovation in support of a global ATM system was the approval by the ICAO Council in November 2006 of the revised Global Air Navigation Plan. Originally titled Global Air Navigation Plan for CNS/ATM Systems, the revised Plan is based on recommendations of AN/Conf/11 and two related industry roadmaps created subsequent to the Conference. In essence, it is part of an integrated set of tools and guidance material, which includes the Global ATM Operational Concept, ATM Systems Requirements and Performance-Based Transition Guidelines that will guide the implementation of CNS/ATM systems and usher in the global ATM system envisioned in the operational concept.

In the migration from a technology-driven to a performance-based air navigation system, the emphasis on results is directly related to the growing reality of corporatized air navigation services provisions and the ensuing pressure for greater accountability.

ICAO has integrated its work in this area into its new Business Plan, which stresses the implementation of harmonized air traffic management systems and performance-based efficiency improvements, as well as increased functional integration between ICAO Headquarters and Regional Offices. Through innovative methods, the Global Plan will facilitate planning and implementation of important operational developments that have taken place in recent years, particularly with regards to aircraft capabilities. It will also ensure that opportunities that have emerged as technologies have matured, as research and trials have been successfully concluded, and as procedures and specifications have been finalized, are fully exploited.

Associated guidance and interactive planning tools for States, regional planning groups and air navigation services providers will be used to establish performance objectives and implementation time lines. The Global Plan will thus become the baseline for measurable achievements as the global ATM system continues to evolve from systems-based to performance-based. States and regions will be able to select initiatives tailored to their particular needs in order to meet agreed performance objectives.

ICAO is assisting States to enhance their knowledge and comprehension of technical, organizational, economic and safety issues related to the implementation of a performance-based air navigation system. There is recognition of the essential role of the Organization in advancing work in the operational, technical, safety

and economic areas, as well as securing global interoperability between major air navigation initiatives.

Another dimension of ICAO's role will be to develop and promote minimum performance reporting requirements for ANS providers, develop a methodology for measuring performance expectations, and develop guidance material on facilitating collaborative decision-making. This will also entail accelerating work on performance-based navigation (PBN). PBN provides for more direct and precise flight paths, increased safety, reduced fuel burn, more efficient traffic flows and reduced ATC communications.

This includes the implementation of area navigation (RNAV) and required navigation performance (RNP) in accordance with the PBN concept, integration of the ICAO Global Air Navigation Plan in performance-based transition planning, collaboration on establishing performance indicators, use of ICAO-defined key performance areas for performance management, and application of the ICAO Global Aviation Safety Plan (GASP) as a basis for meeting safety performance objectives.

Ultimately, the successful implementation of a global air navigation system depends on cooperation among all members of the civil aviation community and involves greater integration of ICAO Headquarters and Regional Offices. ICAO is committed to meeting the operational expectations of all stakeholders. The task ahead is nothing short of ensuring the viability of the future air navigation system and its continued contribution to global economic development in a safe, secure and efficient manner.

Liberalization

Increasing the efficiency of aviation operations also lies in the effective liberalization of the air transport industry—the cornerstone upon which to structure the future growth of the industry. At the Fifth Worldwide Air Transport Conference (ATConf/5) hosted by ICAO in March of 2003, it was recognized that States should, to the extent feasible, liberalize international air transport market access, air carrier access to international capital and air carrier freedom to conduct commercial activities. The overall aim is to create an environment in which international air transport may develop and flourish in a stable, efficient and economical manner without compromising safety and security.

As a follow-up task of ATConf/5, the ICAO Secretariat conducted a study on the safety and security aspects of economic liberalization to identify areas which could have implications for safety and security. The study identified various situations that warrant closer attention by States and provided clarification on how relevant ICAO provisions should be implemented to address some of these situations. It was distributed to States in August 2005.

ICAO published another study in 2005 arising from the work of ATConf/5, this one on an Essential Service and Tourism Development Route (ESTDR) scheme. In cooperation with the World Tourism Organization (UNWTO), the study elaborated on a support mechanism which could be incorporated into an ESTDR scheme for the development of tourism routes, particularly to Least Developed Countries. In November, ICAO and UNWTO announced the launch of a programme of training courses, in collaboration with Airport Strategy and Marketing (ASM) Limited, to enable States to implement an ESTDR scheme efficiently and effectively.

Adding to the substantive guidance for States in air transport matters, ICAO also published a study that same year on the *Economic Contribution of Civil Aviation*. Based on the study, ICAO organized, together with the World Bank and the Air Transport Action Group, the first joint development forum on *Maximizing the Economic Contribution of Civil Aviation—Challenges and Potentials.* The objectives were to promote air transport as a catalyst for economic development, to advocate private/public sector partnerships, to review changes in policies, management and technologies affecting air transport, to address constraints in operating air transport systems and services, and to identify regulatory approaches, benchmarks and other measures for remedial action. The success of the meeting prompted similar events in 2006 and 2007.

ICAO's leadership and proactive approach in the economic field has been prominent in guiding States, in the absence of internationally accepted Standards and Recommended Practices, towards appropriate policies on liberalization. This has been done hand in hand with encouraging each State to determine its own path and own pace of change in international air transport regulation in a flexible way and using bilateral, sub-regional, regional, plurilateral or global avenues depending on circumstances.

Africa: The Way Forward

ICAO has been instrumental in the development of the new Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan). The Plan adopts programme management methodologies contained in the Global Aviation Safety Plan (GASP) in order to achieve sustained improvements in safety levels throughout the continent. It represents the most coordinated and inclusive effort yet to deal with AFI regional challenges. *ICAO Journal* reviews the genesis and major features of this timely and strategic initiative.

ICAO and its Contracting States have cooperated for years in dealing with the complex challenges facing the African Region. In 2006, following an exploratory visit to Africa, members of the Organization's Air Navigation Commission (ANC) recommended a revitalization of ICAO's presence in Africa, in an effort with all stakeholders to reduce the accident rate and increase the overall level of safety. Under the direction of the Council and with the assistance and guidance of government and industry groups concerned, the ICAO Secretariat developed what is now known as the Comprehensive Regional Implementation Plan for Aviation Safety in Africa—the AFI Plan. As its name implies, the AFI Plan is based on a holistic approach. It calls for greater coordination of ICAO safety-related programmes and projects with those of national and regional organizations in Africa, as well as with concerned international bodies.

Above all perhaps, the AFI Plan reflects ICAO's overall strategy and methodology contained in the performance-based GASP and

the industry Global Aviation Safety Roadmap, which both focus on activities with the highest return for improving safety. Accordingly, the Plan adopts a disciplined, programme management approach. It will include specific key stakeholders, identification of risks, performance of a gap analysis, development of prioritized recommended actions, and continuous monitoring and evaluation. It will also clearly stress defined objectives, outputs, activities and metrics. Accountability will become the overall consideration at every stage.

The Plan relates to two strategic objectives of the Organization: safety and efficiency of aviation operations. It will also be closely linked to the ICAO Air Navigation Integrated Programme (ANIP) a dynamic, on-line management tool which incorporates all modern business practices and supports the Business Plan of the Organization.

The role of ICAO has been essential in identifying the challenges specific to the AFI Region, and in organizing the coordinated response represented by the new AFI Plan. The reaction has been overwhelmingly positive from the majority of AFI States and AFCAC, the African Civil Aviation Commission.

The Plan will be able to draw upon expertise available in ICAO's Headquarters and African Regional Offices, AFI Planning and Implementation Regional Group (APIRG), regional and sub-regional safety oversight systems, other Contracting States, ICAO partners such as the International Air Transport Association (IATA), the International Federation of Air Line Pilots' Associations (IFALPA), the International Federation of Air Traffic Controllers' Associations (IFATCA) and other stakeholders, including international funding agencies such as the World Bank. The Plan will also be integrated with the ongoing Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP) and Implementation Support and Development (ISD) safety-related activities.

Taking advantage of the holding of the 36th Assembly, the Council convened a high-level meeting in Montreal for 17 September, the goal of which was to obtain firm political commitment from African States to implement the AFI Plan, and tangible expressions of support from States, industry and other major players. The Council has proposed a draft Assembly Resolution calling for voluntary contributions to assist with the implementation of the Plan. The next issue of the *ICAO Journal* will report on these initiatives.

« **The role of ICAO has been essential in identifying the challenges specific to the AFI Region, and in organizing the coordinated response represented by the new AFI Plan. The reaction has been overwhelmingly positive from the majority of AFI States and AFCAC, the African Civil Aviation Commission.** »

Post 17 September, the AFI Plan's initial implementation phase is expected to cover a four-year period. The next step will be a regional air navigation meeting to be held in 2008, which will serve as a checkpoint for implementation. The APIRG scheduled for November 2007 will also amend its work programme to review the Plan in order to enhance its implementation.

A decision on the continuation of the Plan will be made by the Council based on a three-year progress assessment. In addition to current regional programme resources that will be allocated, investment estimates for the initial phases of the plan fall into the US $3.8 million range over the scheduled four-year period. The Air Navigation Commission, through the Secretariat, will be monitoring and evaluating the implementation of the Plan every six months and will report to the Council on the results achieved at every autumn session. ■

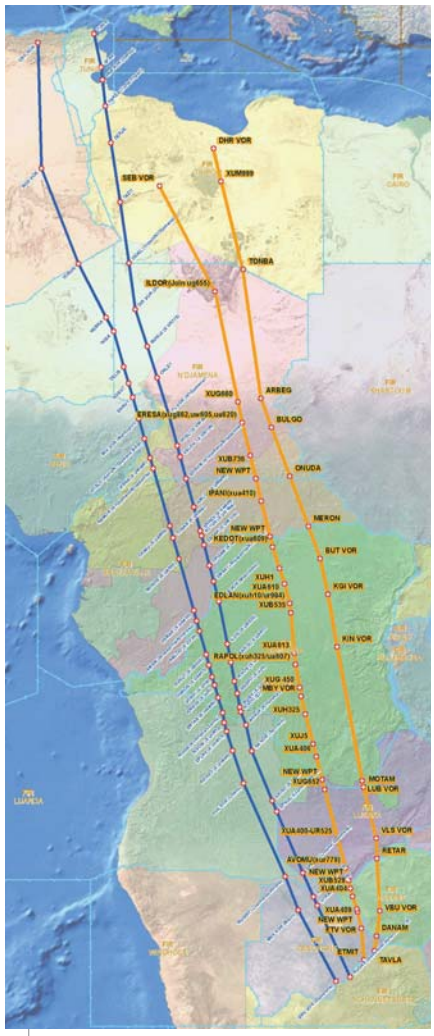
The Red Carpet Treatment

The African region has an extensive network of air routes based on older ground navigation aids. As fleets have modernized and aircraft with more sophisticated navigation systems (capable of extremely accurate navigation without the need for ground-based aids) have become more prevalent, demand has arisen for new routes that are more direct and efficient. This led to the creation by ICAO of two new AFI RNAV RNP-10 routes, which have come to be referred to as Red Carpet I.

"The project really got off the ground as a direct result of the newer navigation technology being incorporated into modern aircraft," commented Dražen Gardilčić of ICAO's Air Traffic Management (ATM) Section. "IATA had approached ICAO to take on the challenge of designing new routes because a number of its member airlines were flying more frequently from Europe to South Africa. They were asking for a new system that would let them start seeing some of the cost-saving benefits that their recent fleet investments and upgrades were meant to achieve."

ICAO got started on the Red Carpet initiative by convening a multi-disciplinary group led by its Regional Offices in Dakar and Nairobi. The group included representatives from the International Air Transport Association (IATA), the Agency for the Safety of Aerial Navigation in Africa (ASECNA), Air Transport Navigation Services of South Africa (ATNS), the African Regional Monitoring Association (ARMA), as well as ICAO Headquarters personnel providing support from Montreal.

Coordination throughout the project was provided by the AFI PIRG, one of the regional planning and implementation regional groups (PIRGs) established in various regions around the world by the ICAO Council in order to ensure the continuous and coherent development of regional air navigation plans, as well as monitoring and fostering their implementation. In the case of the new AFI routes, this was very successfully accomplished.



NEW AFI RNP-10 ROUTE PAIRS

"When the AFI PIRG, acting on IATA's original request, suggested that the region begin to transition towards more efficient routes free of ground-based navigation aids, ICAO ATM put together the right team and got the job done," Gardilčić emphasized.

Red Carpet I was implemented in the summer of 2006, connecting South Africa with the southern Mediterranean coastline. It is used primarily for flights between South Africa and western European destinations *(see map)*. As is usually the case with air navigation improvements, safety and environmental benefits are also being accrued in addition to basic increases in efficiency. Aircraft can now fly much closer to their optimal altitudes, reducing fuel burn and associated costs, and only newer, certified aircraft are permitted to fly in the Red Carpet airspace. IATA has reported both substantial fuel and time savings for user aircraft, with Air France alone cutting 30 minutes of flying time a day compared to under the old system.

Based on the success of the first pair of new routes, a second pair has been defined and is currently in the preparatory stage, with activation planned for later this year. This second pair of RNP-10 routes—Red Carpet II—will also link South Africa with European destinations, but it will be located significantly east of the initial pairing. There are also talks underway regarding an east-west route that would allow for similar efficiencies to be enjoyed by aircraft flying between destinations such as Qatar and Brazil.

"Our role in ICAO Headquarters has been to draw more attention to the process and to better coordinate the various States and services providers required for consultation and then implementation," continued Gardilčić. "One of the first steps I undertook when I got involved was to hold a weekly teleconference with all the stakeholders. This has tremendously improved accountability and overall efficiency. ASECNA mentioned recently that it used to take it years to get a single new route in place, whereas we accomplished Red Carpet I in just six months." ■

Clear skies ahead!

IATA Consulting opens up a wealth of business opportunities

At IATA Consulting, we offer a wealth of customised solutions including strategic, operational, technical and organisational consulting based on in-depth data, hands-on expertise and more than 60 years covering the global industry from the ground up.

Unique Expertise

IATA boasts a diverse, experienced and qualified workforce that is poised to meet and exceed the challenges of market opportunities. Choose IATA Consulting and benefit from the international knowledge and experience of our team of specialists.

The IATA Competitive Advantage

- Unique multidimensional industry expertise
- Access to specialised proprietary data sources
- Integrated solutions covering all fields of aviation
- IATA's unique, unbiased industry position

For more information, visit **www.iata.org/consulting**

IATA Consulting
THE GLOBAL AIR TRANSPORT EXPERTS

Medicine Man

WINNER OF THIS YEAR'S EDWARD WARNER AWARD, BUENOS AIRES NATIVE DR. SILVIO FINKELSTEIN HAS DEDICATED A HALF-CENTURY TO THE FIELD OF AVIATION MEDICINE. AFTER JOINING ICAO IN 1971 AS AN AVIATION MEDICINE OFFICER, DR. FINKELSTEIN WENT ON TO BECOME CHIEF OF THE AVIATION MEDICINE SECTION BETWEEN 1975 AND HIS RETIREMENT IN 1994. HIS MANY ACCOMPLISHMENTS HAVE INCLUDED THE WORLDWIDE INTRODUCTION AND EXPANSION OF REGIONAL AVIATION MEDICINE TRAINING SEMINARS; THE INTEGRATION OF MEDICINE AND SAFETY IN INTERNATIONAL CIVIL AVIATION; THE PIONEERING WORK FOR THE ADOPTION OF ASSEMBLY RESOLUTION A29-15 RESTRICTING SMOKING ON INTERNATIONAL PASSENGER FLIGHTS; AND MOST RECENTLY THE DEVELOPMENT OF PREVENTIVE AND RESPONSE METHODOLOGIES RELATED TO THREATS FROM BIO-TERRORISM AND INFECTIOUS DISEASES. *ICAO JOURNAL* HAD THE PRIVILEGE TO SIT DOWN WITH DR. FINKELSTEIN.

As an introduction for those of us less familiar with the subject, what is it that distinguishes aviation medicine from other medical fields, and how is it related to aviation safety?

Aviation medicine is a branch of medical science aimed at preventing, or providing solutions to, problems that might affect human beings due to air travel operations and conditions. In other words, it attempts to foresee and prevent medical situations affecting passengers and crew that develop as a result of the unique environmental and operational conditions experienced in aviation. Lately this definition has expanded somewhat to include airport situations due to the need for increased pre-flight precautions arising from biological and infectious agents. Aviation medicine and aviation safety go hand in hand in the sense that healthy and capable human beings are indispensable for the design, operation and maintenance of air transport systems.

Your commitment to ICAO and aviation medicine has included spearheading the adoption of ICAO Resolution A29-15, which restricts smoking on international passenger flights.

Did you face any challenges in achieving this victory?

Over the course of a decade, starting in the 1980s, ICAO's Aviation Medicine Section brought to the attention of ICAO's deliberative bodies the health and safety risks posed by smoking on international passenger flights. There were many challenges along the way, both internal and external. Internal challenges came from the opposition of individuals in executive positions who were heavy smokers and wanted to maintain the status quo. They could not understand or imagine the possibility of being a passenger on a long-duration flight without smoking.

Outside of the aviation community, the tobacco industry questioned whether prohibiting smoking onboard an aircraft would indeed improve flight safety or, on the other hand, would affect it significantly. Our investigation into this question centred on a number of conditions. Would prohibiting smoking lead to

On the occasion of his introduction into the International Academy of Aviation and Space Medicine, Dr. Finkelstein (third from right) and Mrs. Finkelstein (third from left) are toasted by Dr. Assad Kotaite (centre) and attending officials and delegates from ICAO.

an increase of clandestine smoking, that is, people smoking in the toilets? And if so, would it increase the likelihood of an accidental fire? The other was whether there would be a deterioration in the inflight performance of crew members who were smokers. Fortunately for all, new and younger generations of aircraft crew members were more aware of preventive medicine. The International Federation of Air Line Pilots' Associations responded positively to the question; this, added to the States' responses, allowed ICAO to proceed with the adoption of Resolution A29-15.

Did ICAO work with any other organizations when tackling the issue of onboard smoking?

Yes, we worked in concert with the World Health Organization (WHO). The tobacco industry had insisted to the ICAO Secretary General that the jurisdiction of the Aviation Medicine Section was flight safety—not public health. As a result, I contacted the Director General of the WHO and we initiated several joint projects. ICAO focused on flight safety and the WHO focused on public health. For the WHO at that time, having a renowned international organization such as ICAO prohibit smoking represented a major victory in its campaign for improved public health. Thus it was a great pleasure and triumph for both organizations when the WHO's Director of the Tobacco or Health Programme, Dr. Juan Menchaca, and I presented the first joint paper at the 8th World Conference on Tobacco or Health in Buenos Aires in 1992. In the end, we managed to achieve the desired results —a Resolution prohibiting smoking onboard commercial aircraft.

Finkelstein and fellow members of a search and rescue team with their Sikorsky S-51 helicopter.

You were very much involved with the Regional Education System for Aviation Medicine that is in place today. How did that programme develop? What were some of the objectives?

When I joined ICAO, the *Manual of Civil Aviation Medicine* did not exist. The first objective was to develop the Manual in 1973. The second objective was to develop a standard for aviation medical examiners that clearly emphasized the importance and need for training. Once these first two objectives were in place, the third objective was to establish a programme of regional seminars around the world. A number of governments were extremely grateful because with international requirements came the justification to budget for medical examiner training. I remain a firm believer in education and I continue to teach seminars.

Finkelstein was a pioneer in the field of aviation medicine. Here he is checking lung functions of a patient in a simulated altitude run in a hyperbaric chamber.

What lies ahead for the Regional Education System for Aviation Medicine?

There is increasing agreement among authorities, airlines and governments that aviation medicine is an invisible, but indispensable discipline for operational safety. This is a consensus that took a long time to instill, but the door is now open. I have always believed that it is of the utmost importance to remind newly graduated doctors that their contribution to aviation medicine will have an enormous effect on operational safety.

What were the challenges faced by international civil aviation during the SARS epidemic several years ago, and what methods were implemented to correct the problem?

The Chicago Convention includes Article 14 —Prevention of spread of disease. When the Severe Acute Respiratory Syndrome (SARS) outbreak occurred in 2003, we implemented a methodology to tackle the problem. The economic, tourism and social problems that resulted from the SARS outbreak were quite significant. One of the tools developed was the Infrared Sensor System (IFSS), used to screen passengers by measuring skin temperature without interfering with their movements in the terminal. As they passed through the scanner, those with a higher temperature reading were subsequently tested with a standard medical thermometer. If the passenger failed this second test, they would then be separated from the travelling public for further testing. The methodology we developed during this outbreak included advice and guidelines on inspecting arriving, departing and in-transit passengers.

How is aviation handling the threat of avian influenza?

A variation of the methodology used in facing the SARS outbreak is being used today to combat the threat of avian influenza. At present, there have not been any known human-to-human

transmissions, but my concern is that, despite the fact that we have recorded only 300 human cases, the mortality rate for this disease is more than 60 per cent. SARS, by comparison, had only a 10 per cent mortality rate.

You recently presented a lecture on fear of flying. How are aviation medicine and fear of flying related?

Health is a condition of safe air travel, and mental health is another aspect of safe air travel. My lecture focused on how the fear of flying is interpreted differently by general psychiatry and aviation psychiatry. In general psychiatry, the definition of fear of flying is non-existent. It is considered an anxiety or a neurosis. Within the aviation psychiatry community, fear of flying is a specific condition. Interestingly, research indicates that between 20 and 40 per cent of the population has some fear of flying. Significantly, this number includes crew members as well as passengers.

and then ensure that there are good preventative health programmes in place to keep them flying. I have always believed that if we feel it necessary to revoke a licence for medical reasons, we have failed in our goal to properly screen individuals.

What does the future hold for aviation medicine?

I am delighted with how civil aviation medicine is being handled internationally. Different organizations and agencies, including the International Academy of Aviation and Space Medicine and the Aerospace Medical Association, are making substantial contributions to its progress. ICAO continues to lead the charge with Dr. Anthony Evans, Chief of Aviation Medicine. Others, who play and will continue to play a significant role in the future of aviation medicine, include Dr. Claude Thibeault, Medical Advisor for IATA, and Dr. Jarnail Singh, Chief Medical Officer for the Civil Aviation Medical Board of Singapore. Both have worked, and will continue to work, closely

What is the biggest trend and shift in aviation medicine that you have encountered in the last 50 years?

When I was a young student of aviation medicine, the major objective was to ground the unfit. My teachers gave me a list of disqualifying diseases, which practically covered the whole medical gambit. My mission was to be a detective. As soon as I found someone with one of these problems, he was to be grounded. Today, the concept of aviation medicine is to keep them flying. We seek to select the most desirable individuals

with ICAO to improve the world of aviation medicine. These three outstanding colleagues are leading the way. ICAO produced good results at reasonably low cost in the fight against SARS, with help from the governments of Singapore and China, who contributed significantly during the outbreak. Avian influenza is a major concern for the present and the future of aviation medicine, but I am confident that we will succeed. My goal for the future is the same as it was 50 years ago. I would like the passenger to be as well when he gets off the aircraft as he was when he got on. ■

Of Stats and States

ICAO'S ECONOMIC ANALYSES AND DATABASES (EAD) SECTION IS AVIATION'S SINGLE-SOURCE PROVIDER FOR GLOBAL DATA RELATED TO THE AIR TRANSPORT SYSTEM. *ICAO JOURNAL* SPOKE TO CURRENT SECTION HEAD OLEG NAZAROV AND HIS STAFF CONCERNING THE INTIMATE RELATIONSHIP BETWEEN EAD AND MEMBER STATES, AND HOW THIS RELATIONSHIP FORMS THE BACKBONE OF ALL GLOBAL AVIATION ANALYSIS.

As a bit of background for our readers, when was the Economic Analyses and Databases Section formed, and how has its mandate or methods changed in the ensuing years?

Oleg Nazarov: EAD Section was created in February 2006 with the merger of the Statistics Section and the Forecasting and Economic Planning Section. The aim was to ensure that the emerging needs of the "new" ICAO would be met. When the Organization established its strategic objectives with the Business Plan, it also needed tools to properly set its broader goals and priorities, and to measure its success in meeting them. It was logical in this regard to merge these two sections in order to support the activities of all the Bureaux within ICAO.

The creation of the EAD Section also reflects the evolving requirements of the aviation community. When ICAO was created in 1944, the people drafting the Chicago Convention envisioned, even at that time, the need for statistical information, and they included Article 67, which requires States to provide data so that ICAO could develop global industry perspectives and practical economic analysis. In the beginning, fare structures were of primary statistical importance, as well as the volume of airmail and cargo being carried. Requests from States for different types of data have changed over the decades as new industry priorities have emerged, with areas such as safety and the environment currently being topics of intense interest.

How important is the role of Member States in providing ICAO with data, and are there methods used to ensure the quality of the information that's being collected and conveyed?

Oleg Nazarov: The role of the States is very important. Simply put, if they don't provide ICAO with data then we have very little to work with. That being said, although States may be obliged to provide data, some have very limited resources to do so. Our mandate, therefore, is also to assist States in developing their abilities to provide reliable data.

By way of an example, in 1991 the former Soviet Union collapsed. As a result, 15 newly independent States were created. The Soviet Union had a unique system. It was planned, very centralized and not market-oriented. But it worked. The 15 new States came to ICAO asking for help because they had no experience or knowledge of how to create a system to collect data within a market system. In 1993 I organized the first seminar in Moscow with some of the best statisticians from around the world, and they presented a methodology to the State representatives. Now we organize regular seminars for them and their systems are among the best in the world. It's thus a two-way street: States are helping us and we are helping States.

> « States are helping us and we are helping States. »
>
> | Oleg Nazarov

Regarding the quality of the information we collect from States, this is obviously very important. We created an Integrated Statistical Database (ISDB)—that became operational in 2001—specifically to help us establish more reliable quality control. With it, we can compare data from previous months or years and any significant discrepancies in data submissions are automatically noted for further analysis.

Ananthanarayan Sainarayan, Statistical Officer: We also have secondary contacts at the airport and airline levels to help us with data verification, but States are the primary source for collecting quality control data. As Oleg mentioned, if States have trouble collecting data, we set up seminars and workshops in an effort to improve the methods used. As far as the ISBD is concerned, it makes use of very sophisticated verification and validation tools that all our staff are now familiar with. We have many stages of quality control, and since our data is open and available 24/7, we occasionally get input from external stakeholders who tell us if they see any problems—but these cases are very rare.

Do you feel that States and the aviation community are taking full advantage of your data, or are there applications for it which you feel may currently be underutilized? Why is it important for States to have a global picture?

Oleg Nazarov: The first answer is, unfortunately, "No." Many States are not taking full advantage of our data. Every time we seek their feedback they rate us as very, very important, and they want us to continue to do our work. But to take full advantage of our resources, they would need to be applying statistical information in their

Chaouki Mustapha
Economist
ICAO

Oleg Nazarov
Statistical Officier
ICAO

Ananthanarayan Sainarayan
Statistical Officier
ICAO

The Tech Behind EAD

EAD's integrated statistical database (ISDB) is based on an object-oriented, open source data structure employing an Oracle database, which is compatible with XML publishing. EAD IT staff use XML to disseminate information to the Member State secure site where the States then access the data free of cost, and the same data is exported to ATI in London for web-publishing to ICAO's paid user-base.

A typical data-cycle, from data reception from source, through verification and finally to XML export, follows a strict 21-day time frame that has been in place since 2004.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 XML

policy-making, and that isn't yet the case for many States. One of our goals, therefore, is to make the data easily accessible and we are doing that with the cooperation of the States. We've established a secure site where they can view and make use of the collected data free of charge, and we continually endeavour to make this web interface even more user-friendly and useful to our members.

And why is it important for States to have a global picture? Basically because any new project starts from data, and the more data you have to compare from diverse international sources the more likely your project is to succeed. If a State is planning a new airport, for example, they will require data from similar global markets in order to develop accurate passenger forecasts, runway dimensions and many other relevant indicators of capacity and need. Investment capital can be very hard to come by for a large-scale infrastructure project unless your business plan answers these and other data-related questions, and only global or at least broader regional market data provides a credible frame of reference in this respect.

Chaouki Mustapha, Economist: I'd like to add that this is truer today than it was in the past. With the advent of globalization it is more important than ever for a State to understand its role and position within its regional or global framework. It must develop a comprehensive statistical portrait that clearly identifies the specific market-related challenges and opportunities that confront it now and in the future.

Ananthanarayan Sainarayan: It's also important to note that the question regarding how States are making use of our data is a relative question. Many countries do make extensive and very practical use of what we have to offer, and by way of an example, we've recently had requests from the FAA in the United States, as well as the Japanese, Indian, Chinese and the British delegations. So there is also considerable value attached to our data by certain members, but it is basically a common sense, cause-and-effect relationship—as aviation develops more extensively in a State, said State then becomes more involved in both the submitting and the analysis of data pertinent to their operations. ■

1 Behnam Gerges | **2** Muhammad Anwar | **3** Ananthanarayan Sainarayan | **4** Anne-Marie Steiman | **5** Teresa Cerone | **6** Cornelia Fischer | **7** Guida Figueira-Solipa | **8** Dale Keiller | **9** Max Rodriguez | **10** Grazyna Resiak | **11** Chaouki Mustapha | **12** Jeanine Chung Pin Yong | **13** Oleg Nazarov

18 Airport Executives on their Way to IAP Designation

The first ACI/ICAO Airport Management Professional Accreditation Programme (AMPAP) on the Air Transport System (ATS) course was held at ICAO Headquarters in Montreal, Canada, from 25 to 29 September 2007. Representatives from 17 airport companies and seven countries (Canada, India, Japan, Panama, Senegal, Trinidad and Tobago, and the United States) engaged in five days of presentations, teamwork, debates, and written and oral exercises.

AMPAP is a unique programme that confers the International Airport Professional (IAP) designation on what will become a new elite of internationally-accredited airport executives. The programme comprises six courses, including four mandatory and two elective courses, to be completed within a three-year timeframe.

Course participants, AMPAP and ACI staff pictured with Air Transport Bureau Director Folasade Odutola (front row third from left).

The ATS course is a very intense programme focusing on such issues as the role of the air transport system in the global economy, its legal structure, the functions of the key stakeholders of civil aviation, the strategic position of airports in the global aviation marketplace and related topics.

Rated as an enriching and a unique learning experience (the class rated the course a 9 out of 10), the ATS course was also offered in Panama City, Panama, from 20 to 24 August, and Geneva, Switzerland, from 17 to 21 September.

ICAO and ACI have worked in concert to build a programme which is affordable and accessible to airport managers worldwide. ICAO Secretary General Taïeb Chérif and ACI Director General Robert J. Aaronson officially launched the programme on 14 March 2007.

For further information, please visit www.iap.aero, or contact Monica Tai Chew, Manager, Administration and Client Relations, via e-mail mtaichew@iap.aero or telephone: +01 (514) 396-9499.■

Participants' reactions to the first ACI/ICAO Airport Management Professional Accreditation Programme (AMPAP) on the Air Transport System (ATS)

"This course had excellent content, good teaching and a participatory approach which made it valuable for me. I recommended that our company continue to send management level personnel to this programme."

Hidehisa Matsumoto, Manager, International Policy and Planning, Tokyo Narita International Airport

"The most memorable (thing) about the course is how much there is to know, even for someone that has been around for as long as I have been; we are still scratching the surface of what's available out there in terms of rules and regulations, the global impact of what we do every day: just the general knowledge of things. I'm very happy I had the opportunity to experience some of these things and I am going to apply them tomorrow."

Russell Widmar, Director of Aviation, City of Fresno, California, Department of Airports, United States

"Definitely AMPAP is one of the best course programmes for airports managers. The instructors are skilled and well prepared."

Papa Diery Sene, Management Controller, AANS International Airport Leopold Sedar Senghor, Senegal

"I very much enjoyed the course. It has enhanced my knowledge of ICAO and the (air transport) system on a worldwide basis. Excellent forum to learn from peers around the world."

Tom Bibb, Director of Operations, Nashville International Airport, United States

Shown on the occasion (from left to right) are: Jalal Haidar, Representative of the UAE to ICAO; Diana Wall, Focal Point for Women, Human Resources Branch; Captain Aysha Al Hamili; and Dr. Taïeb Chérif, Secretary General.

Captain Aysha Al Hamili

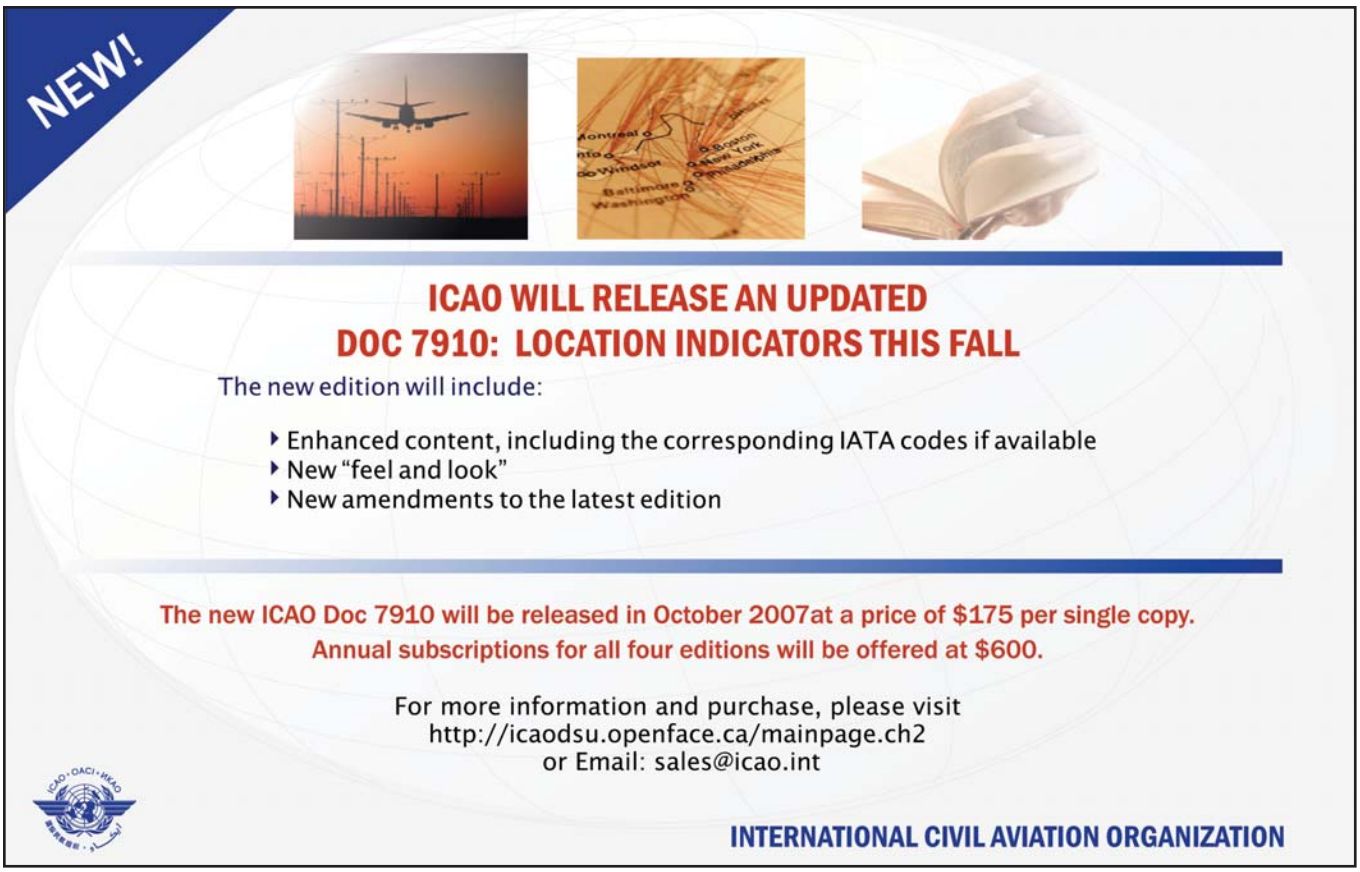
Al Hamili Addresses Affirmative Action Gathering

As part of the Affirmative Action Programme for gender equality and gender equity underway at ICAO, the first of a series of lunchtime talks on gender issues took place on 6 June 2007.

Captain Aysha Al Hamili of the United Arab Emirates (UAE) was in Montreal for the launching activities of the Delegation of the United Arab Emirates to ICAO and was an outstanding inaugural speaker for the affirmative action series. Her talk, delivered in the presence of Dr. Taïeb Chérif, Secretary General, and Mr. Jalal Haidar, Representative of the UAE, was well attended by staff members of National Delegations.

Captain Al Hamili spoke of her experiences as the first woman from the UAE to fly as a professional pilot. She also has the distinction of being the first woman to fly (as the only female member of the crew) to the oil islands, which are inhabited only by men. Additionally, the distinction of being the youngest woman to become a licensed Certified Flight Instructor (CFI) and Certified Flight Instrument Instructor (CFII) has been submitted to Guinness World Records. Captain Al Hamili also has a Bachelor of Social and Behavioural Sciences degree with Specialization in International Studies.

Captain Al Hamili's dynamism, charm and sense of humour delighted all. Her talk was very enthusiastically received and an inspiration to all. ■



Ninth Meeting of Directors of Civil Aviation of the Central Caribbean (C/CAR DCA/9)

The Ninth Meeting of Directors of Civil Aviation of the Central Caribbean (C/CAR DCA/9) was held in Oranjestad, Aruba, from 9 to 12 July 2007, kindly hosted by the Department of Civil Aviation of Aruba.

The event was conducted in English and Spanish and attracted 33 participants from Aruba, Cayman Islands, Cuba, Dominican Republic, Haiti, Jamaica, Netherlands Antilles, United Kingdom, United States, IFATCA and RASOS.■

New Environmental Report Launched

Minimizing the impact of air transport on the environment is a top priority for ICAO and its 190 Contracting States. The Organization works through its Committee on Aviation Environmental Protection (CAEP—the official forum dealing with global aviation environment issues) to identify and promote technological development and operational measures for increased sustainability, in cooperation with key stakeholders.

Recognizing the important social and economic consequences of environment-related decisions, and understanding that they must therefore be based on the most reliable and comprehensive information available, ICAO has announced the development of its first ever *Environmental Report* to coincide with the occasion of the 36th Assembly. To be published every three years in order to coincide with future ICAO Assemblies, the *Environmental Report* will provide the global community with a comprehensive update on important areas of environmental relevance.■

DEPOSIT BY HUNGARY ON 21 JUNE 2007

Hungary deposited its instruments of ratification of three Protocols of amendment to the Chicago Convention during a brief ceremony at ICAO Headquarters on 21 June 2007. The Protocols amend Article 50 (a) (increase in the Council from 33 to 36 members) and the final paragraph of the Chicago Convention (to provide for the authentic texts of the Convention in the Arabic and Chinese languages).■

Shown on the occasion (from left to right) are: Dr. Attila Sipos, Representative of Hungary on the Council of ICAO; His Excellency Dr. Pál Vastagh, Ambassador of Hungary in Ottawa; Dr. Taïeb Chérif, Secretary General; and Mr. Denys Wibaux, Director, Legal Bureau.

European Commission VP Addresses Council, Inaugurates Montreal Office

By Timothy Fenoulhet, Head of Office, Office of the European Commission in Montreal

Shown on the occasion (from left to right) are: Timothy Fenoulhet, Head of Office, Office of the European Commission in Montreal; Roberto Kobeh González, President of the Council; and Jacques Barrot, Vice-President of the European Commission, responsible for transport.

Mr. Jacques Barrot, Vice-President of the European Commission, responsible for transport, officially visited ICAO Headquarters this past June.

During his visit, Mr. Barrot was invited to address the Council. In his speech, he emphasized the long-standing commitment of the European Union (EU) to multilateralism, and underlined the European Commission's support for ICAO. He mentioned the many areas of cooperation between the EU and ICAO and how EU legislation in the field of civil aviation had developed considerably over the years, in all areas, such as economic regulation, safety, security and the environment. Mr. Barrot also mentioned important initiatives such as the EU's Single European Sky and its ATM modernization programme, SESAR, as well as the recent EU-US open skies agreement, as important examples of the external aviation policy of the EU.
The Vice-President pointed out that EU regulations significantly contribute to the implementation of ICAO standards in Europe by making them legally binding and uniformly applied across the EU's 27 Member States. This process was being extended to neighbouring countries, which apply EU aviation law. ICAO could thus take advantage of the EU's unique experience of developing common rules at the regional level.

Looking ahead to the Assembly in September 2007, Mr. Barrot called on ICAO to show leadership and meet the main challenges faced by the international aviation community, notably the growth and competitiveness of the industry, safety, security and the environment. On the latter, he called for a global and integrated approach. The Vice-President declared that ICAO could count on the European Commission's support and cooperation in developing global and effective solutions to these challenges.

While in Montreal, Mr. Barrot officially inaugurated the Office of the European Commission at a ceremony held on 21 June, which was attended by Mr. Kobeh, President of the ICAO Council; Dr. Chérif, Secretary General of ICAO; Dr. Kotaite, Honorary President of the ICAO Council; Mr. Prince, Ambassador and Head of the EC Delegation to Canada; and European Representatives on the ICAO Council.

The Office of the European Commission in Montreal was established in September 2005 to strengthen relations and cooperation between the EC and ICAO. Its Head, Mr. Timothy Fenoulhet, is the main point of contact for ICAO on EC air transport policy and legislation and participates regularly as the EC's representative in ICAO meetings.■

Australia Ratifies Explosives Detection Convention

Australia deposited its instruments of ratification of the Convention on the Marking of Plastic Explosives for the Purpose of Detection, done at Montreal on 1 March 1991, during a brief ceremony at ICAO Headquarters on 26 June 2007. This brings the total number of parties to the Convention to 133. ■

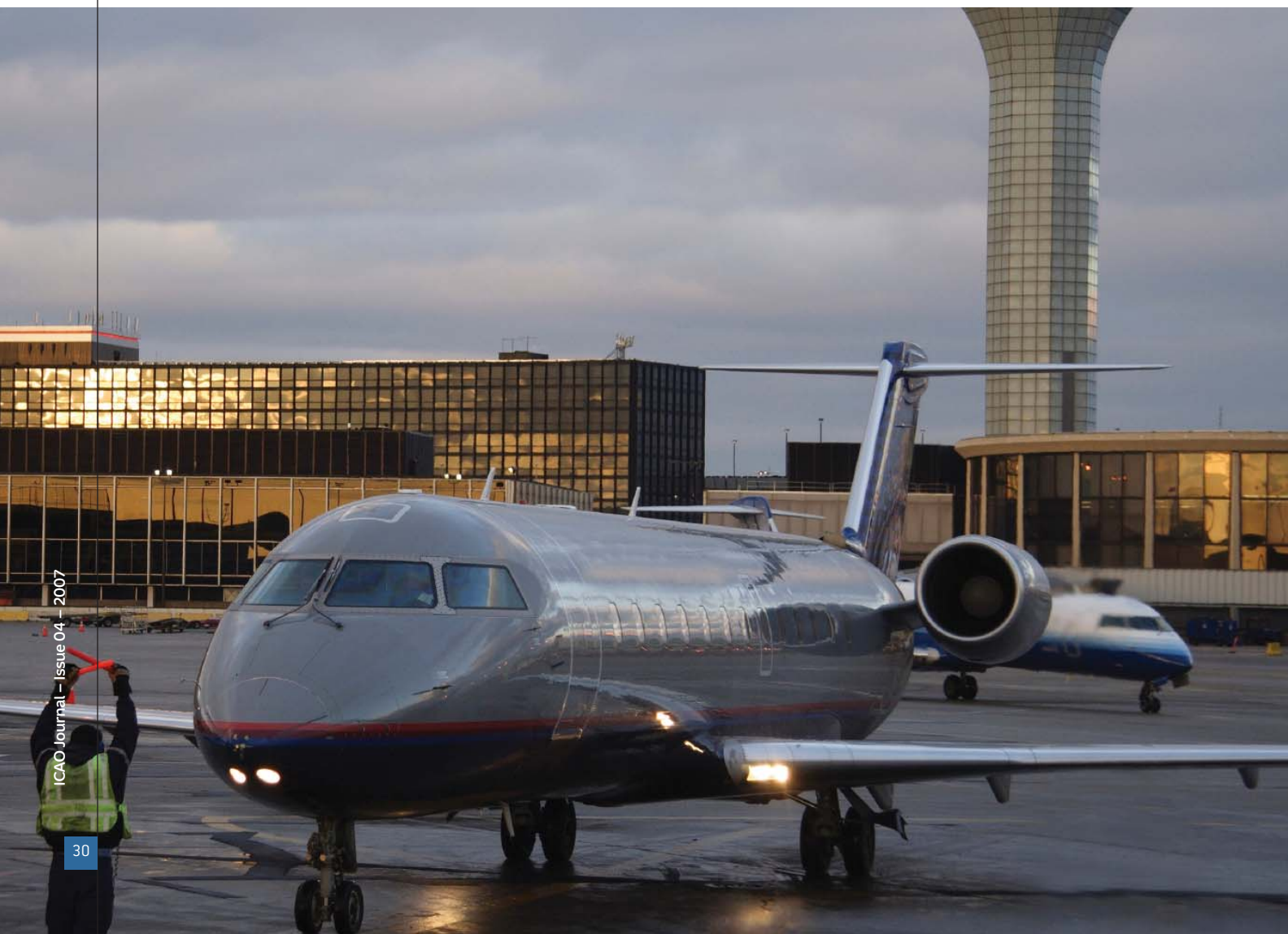
Shown on the occasion are: Mr. Simon R.E. Clegg, Representative of Australia on the Council of ICAO; and Mr. Denys Wibaux, Director, Legal Bureau.

Speaking of Safety

RESPONDING TO CLEAR SAFETY CONCERNS AND FATAL ACCIDENTS WHERE A LACK OF ENGLISH LANGUAGE PROFICIENCY WAS A CAUSAL FACTOR, THE ICAO AIR NAVIGATION COMMISSION INITIATED IN 2000 THE DEVELOPMENT OF NEW LANGUAGE PROVISIONS THAT WERE ADOPTED BY THE COUNCIL ON 5 MARCH 2003. AS OF 5 MARCH 2008, ALL PILOTS AND AIR TRAFFIC CONTROLLERS INVOLVED IN INTERNATIONAL OPERATIONS WILL BE REQUIRED TO DEMONSTRATE THAT THEY HAVE ACHIEVED A MINIMUM OF ICAO OPERATIONAL LEVEL 4 IN ENGLISH.

It was just a little after 18:30 local time, 12 November 1996, when a Boeing 747 departed from Indira Gandhi International (IGI) Airport with 312 passengers on board. After take-off, Delhi approach gave the order for the Boeing aircraft to climb and maintain flight level 140. Meanwhile, the flight crew of an Ilyushin 76, carrying 37 occupants, had been instructed to descend and maintain flight level 150. At 18:40 hours the two aircraft disappeared from the IGI radar screens in what was the worst mid-air collision in aviation history.

According to the accident report, one important factor that contributed to the mid-air collision was the inadequate level of English of one of the pilots, resulting in the misinterpretation of ATC instructions. Responding to this conclusion, the ICAO Assembly requested the Council and the Air Navigation Commission to deal with this very serious safety problem through Assembly Resolution A32-16. The Proficiency Requirements in Common English Study Group (PRICESG) was later established and, based on its work, the Council adopted Amendment 164 to Annex 1, with amendments to Annexes 6, 10 and 11, addressing the need for strengthened language proficiency for pilots and air traffic controllers.



Since 2003, significant steps have been taken by ICAO to assist States with the implementation of these requirements. The first edition of the *Manual on the Implementation of ICAO Language Proficiency Requirements*, and the training aid entitled ICAO Language Proficiency Requirements—Rated Speech Samples, were produced. Twelve regional seminars were conducted, and two ICAO Aviation Language symposia were conducted in 2004 and 2007—the latter being attended by 221 participants from 62 states and eight international organizations. Highly substantive papers were presented at the event and are available for review on the ICAO web site at www.icao.int/icao/en/anb/meetings/IALS/index.html.

It's become apparent over time that the implementation of the new language provisions is challenging and resource intensive. Language proficiency testing for licensing has the potential to negatively impact not only the careers of pilots and controllers, but also the economic well-being of air navigations services providers and States. Ultimately, however, the biggest impact could be on safety. Hence the need to develop or provide testing that complies with best practices.

English language licensing testing should be based on the ICAO rating scale and holistic descriptors for Language Proficiency in Annex 1. The testing should be about speaking and listening in a context appropriate to aviation, lead to the development of quality training, and involve operational and linguistic experts at the developmental, delivery and rating stages.

ICAO has developed a checklist to assist States, Operators and Air Navigation Service Providers in the implementation of Language Proficiency Requirements. Based on an Implementation Plan presented to the European Air Navigation Planning Group in 2006, it can be adapted to meet the specific needs of each stakeholder.

The checklist addresses the basic steps that should be taken to ensure the success of the implementation. It emphasizes the need for a concerted effort on the part of all parties involved: pilots and controllers, regulators, operators, aviation language testing and training industries, and ICAO.

The checklist should furthermore prove useful to develop an inventory of what has been achieved thus far and what remains to be done. It can stimulate discussion on particular aspects of the implementation process and can help channel resources more effectively and efficiently in accomplishing the remaining tasks.

For a complete checklist, which includes corresponding references to the Annexes and ICAO guidance material, readers should visit the ICAO web site at: www.icao.int/anb/fls/AUD001. ■

The IATA Fuel Efficiency Gap Analysis (FEGA) Go-Teams

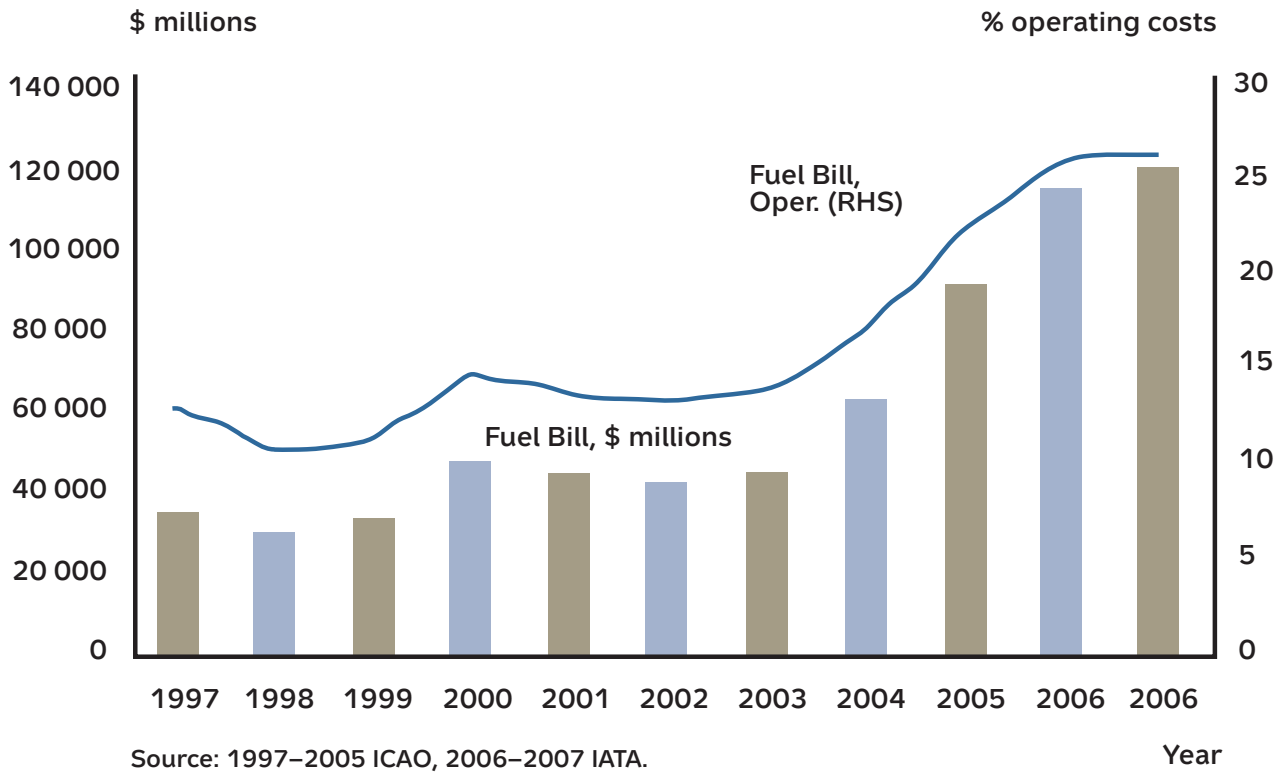
By Capt. Chris Schroeder, assistant director, flight operations, IATA

CONSERVING FUEL IS IMPORTANT FOR TWO VERY OBVIOUS REASONS. FIRST, IF AN AIRPLANE USES LESS FUEL IT WILL PRODUCE LOWER CO_2 EMISSIONS. SECONDLY, GIVEN THE HIGH PRICE OF OIL, AIRLINES CAN SAVE CONSIDERABLE SUMS OF MONEY BY USING LESS FUEL THROUGH IMPROVED FUEL EFFICIENCY. THE SAVINGS COULD BE USED TO INVEST IN MORE MODERN AIRFRAMES AND ENGINES, AS WELL AS OTHER TECHNOLOGIES TO HELP FURTHER REDUCE FUEL CONSUMPTION. A 1 PER CENT REDUCTION IN THE AVERAGE ANNUAL FUEL BURN OF A B737-300 OR AN A320 RESULTS IN 100 TONNES OF UNUSED FUEL, US$ 50,000 IN COST SAVINGS TO THE AIRLINES AND 400 TONNES OF CO_2 NOT EMITTED INTO THE ATMOSPHERE. THIS ARTICLE LOOKS AT IATA'S FUEL EFFICIENCY PROGRAMME, THE GO-TEAMS, AND WHAT AIRPORTS AND OTHER INDUSTRY STAKEHOLDERS CAN DO TO IMPROVE FUEL EFFICIENCY GLOBALLY.

In 2004, the Board of Governors of IATA mandated its Director General and CEO Giovanni Bisignani, to assist airlines with finding ways to tackle rising fuel prices. By that time it was already clear that the price of fuel would never drop to its former low, and that the airline industry would have to adapt quickly to the new situation.

IATA reacted swiftly and by the end of 2004 it published the first comprehensive *Best Practices and Guidance Material for Fuel and Environmental Management*, also referred to as the IATA "Fuel Book." This material was made available to the industry free of charge. Furthermore, IATA initiated the Fuel Action Campaign which rests on three pillars: ATM and Infrastructure improvement, which achieved savings of 6 million tonnes of CO_2 last year through the shortening of 300 routes; the "Save One Minute" Campaign, which saved one million tonnes of CO_2, and; the Operational Efficiency

Figure 1: Airline Fuel Bill: 1997-2007.



Source: 1997–2005 ICAO, 2006–2007 IATA.

Programme, which helped airlines save another 8 million tonnes of CO_2 through its Go-Teams. The Go-Teams form the backbone of the Operational Efficiency Programme and have been in action since October 2005 *(see Fig. 2, IATA Fuel Savings Campaign, page 34)*.

"The IATA Go-Teams have now conducted over 60 Fuel Efficiency Gap Analysis (FEGAs) with airlines globally since the programme launch," remarked Capt. Chris Schroeder, assistant director of flight operations at IATA. "To date, they have identified over US$ 1.9 billion in fuel savings potential among member and non-member airlines, and in 2007 22 FEGAs have already been conducted with considerable positive results."

« The IATA Go-Teams have now conducted over 60 Fuel Efficiency Gap Analysis (FEGAs) with airlines globally since the programme launch. To date, they have identified over US$ 1.9 billion in fuel savings potential among member and non-member airlines, and in 2007 22 FEGAs have already been conducted with considerable results. »

The size of the participating airlines ranges from regional operators with three aircraft, to major airlines with 350 aircraft. Individual savings range from US$ 1 million to US$ 300 million, depending on fleet size and annual fuel budget. Considering that an airline's fuel bill accounts for more than 25 per cent of its operating costs (compared to 10 per cent in 2002), even a saving of 2-3 per cent would have a significant impact *(see Fig. 1, Airline Fuel Bill: 1997-2006, page 32)*.

The FEGA Go-Teams, led by Capt. Schroeder, consist of three senior industry representatives with expertise in flight operations, flight dispatch and planning, and finally maintenance and engineering respectively. These are the core areas the FEGA reviews. Related areas such as ground operations, service delivery, contracting, schedule and network planning, and commercial operations are also considered. The Go-Team subject matter experts come from various parts of the world and possess a wide variety of know-how and expertise.

The FEGA (FEC—Fuel Efficiency Consulting for non-IATA member airlines) is conducted in three stages. After the initial contact with the airline and finalizing of the agreement, IATA collects comprehensive data such as annual flying hours, cycles, Auxiliary Power Unit (APU) data, fuel policy, standard operating procedures, maintenance-related data and schedule information—to mention a few. This data is used to conduct an in-depth pre-analysis; it is fed into the "Fuel Efficiency Calculator," an IT tool that has been developed by IATA in order to identify potential savings based on the metrics received from the airline.

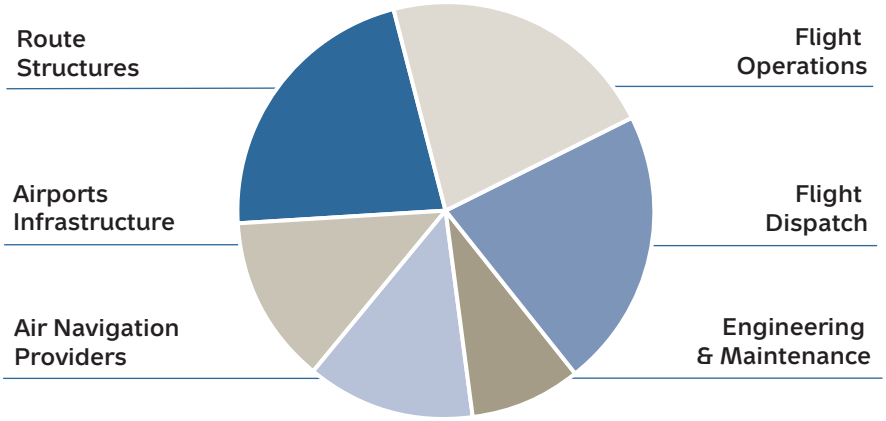
Once all the data received has been analyzed, processed and verified with the airline, an on-site assessment is scheduled. This usually lasts three to four days, depending on the size and fleet composition of the airline. During the assessment, the Go-Teams conduct in-depth interviews with key personnel of the airline, take observation flights, and visit the maintenance hangar in activity and observe line operations—all from a fuel efficiency perspective. Attention is paid to procedures such as reduced flap takeoffs, which lead to savings in fuel consumption during the phase of flight with the highest fuel flow.

Another method to reduce consumption is for planes to carry less weight. One kilogram less weight per seat can save on average 9,000 gallons of fuel per year, per aircraft. Ways to achieve these savings include reducing potable water amounts to meet predicted consumption rather than filling tanks to capacity and reviewing heavier duty-free items, the number of magazines, cockpit manuals and return catering supplies.

Many airlines underestimate the cost-of-weight factor. For instance, a very effective and simple way to reduce weight and save fuel is to take on less while not compromising safety. Safety always has priority and, whatever the Go-Teams recommend, each list item is appraised from the safety perspective first.

Another relatively straightforward option to improve operational efficiency and reduce emissions is a comprehensive APU policy. Given the cost of US$ 0.30 per minute for using a ground power unit (GPU) compared to an APU fuel and maintenance cost of US $20 for an A320, one can easily see the benefits. The major problem faced by airlines, however, is ground infrastructure. Many

Figure 2: Elements of the IATA Fuel Savings Campaign.



airports do not have adequate GPU and ground air units available, or else prices have been adjusted so that they now approach APU operation costs. IATA is proactively addressing the issue with airports and ground service providers around the world.

At the end of the on-site assessment, the Go-Teams, together with the airline, establish achievable savings potentials. The final stage of the FEGA involves the production of a comprehensive report, which includes all calculations, identified savings potentials and implementation recommendations. The report is made available to the airlines' senior management, with further suggestions for improvement.

IATA's work does not end here. In many cases, the Go-Teams bring back a lot of related valuable information which is shared with manufacturers or other concerned industry stakeholders. IATA is in constant touch with them to improve fuel efficiency through better procedures and improved technologies. IATA also maintains an open line of communications with the airlines assessed. It monitors the implementation process and gives further advice whenever required. Moreover, IATA offers a specialized service through IATA Consulting for those airlines looking for external experts to implement the FEGA recommendations. In 2007 IATA witnessed a surge in implementation work.

> « The support of airports and ATS providers is vital to complement global efforts for a significant reduction in fuel consumption and limiting carbon emission. We all have to be part of the solution. »

While IATA has long been proactive with airlines in relation to fuel and environmental issues, the ongoing efficiency programme has more recently been extended and intensified to integrate initiatives aimed at improving airport infrastructure. Initiatives cover the areas of runway configurations, high-speed turnoffs for efficient runway use, efficient taxiways and taxi routes, improved apron management and capacity limits to ensure gate availability, ground power support and reductions in departure delays.

"So far the programme has been a huge success," emphasized Capt. Schroeder. "Not only did we receive the buy-in from our member airlines, but also from non-member airlines and many other industry stakeholders. At the beginning of 2007 we had to increase the number of teams from three to five, and right now we're looking into a further increase. We've widened the scope of the Go-Teams by adding another ground/airport operations expert, and we're seeking ways to tie the airports and local ATS providers more meaningfully into the FEGA process. Their support is vital to complement global efforts for a significant reduction in fuel consumption and limiting carbon emissions. We all have to be part of the solution." ■

About the Author

Capt. Chris Schroeder is assistant director, flight operations with IATA in Montreal and the FEGA Go-Team Project Leader. He began flying at the age of 14 and accumulated over 13,000 hours in his 20-year commercial flying career, flying the A320, A330, A340-300 and A340-500, as well as the B707 and B747. He also held several senior management and advisor positions in various parts of the world. He holds Masters Degrees in Aviation Science and Airline Management, as well as an MBA and an IATA Diploma with Distinction in Operations Management. He has written several industry white papers, mainly relating to issues in emerging markets. For questions or comments, please contact: **schroederc@iata.org**.

YOU'D BE SURPRISED WHERE YOU FIND US

As airspace gets more crowded, you'll find Thales taking control.

ATM systems face the same challenge worldwide: economic growth means more air traffic, putting dangerous pressure on existing systems. Thales is the safe choice for futur development. We can take on prime contractorship and deliver complete turnkey solutions, gate to gate.

We already control the airspace in 180 countries: our EUROCAT ATM system is the industry standard. In technology, we lead the way with Mode S radars and Automatic Dependant Surveillance-Broadcast (ADS-B). In European initiatives we're partners in the Single European Sky (Sesar) and Galileo satellite programmes.

Fully equipped for the present; already planning for the future. If you're looking for the safest route forwards, call Thales.

THALES

The world is safer with Thales

www.thalesgroup.com

FORUM

Global Standards and Aviation: A Winning Combination

By Giovanni Bisignani, DG and CEO of IATA

Global standards and aviation are a winning combination. When we harmonize globally we achieve great things. Look at what harmonized standards have done for safety. Look at what they have done for simplifying the business. That is why it is so vital to achieve global harmonization on two key issues to be discussed at the ICAO Assembly—the environment and security.

Our success in safety is underpinned by cooperation between governments and the industry-based globally harmonized approach. ICAO, IATA and the entire aviation community should be proud of having cut the accident rate nearly in half over the last decade. The recent events in Brazil and Indonesia are reminders that safety is a constant challenge. But the challenge can best be met effectively when the solution is implemented globally.

IATA's Simplifying the Business initiative is another example. While many airlines had their own e-ticketing programmes, the potential US $3 billion in savings can only be achieved with 100 per cent penetration. That will be a reality by 31 May 2008—exactly four years after IATA launched the initiative.

Since 2001, our approach to security has been anything but harmonized. Countries reacted to an emergency situation with unilateral measures—waiting for global consensus was not an option. In the six years that followed, we have made aviation much more secure. But we have failed to turn the unilateral measures into a global risk-based system. Passengers suffer hassles while airlines bear the brunt of high costs. We have made some progress. The common approach to liquids and gels is a good example. But much more must be done. Security sits firmly on the agenda of this year's ICAO Assembly as a priority item. ICAO's 190 Member States share a commitment to providing secure air transport. So I am confident that governments will find a globally harmonized means to work with airlines to achieve it.

The biggest issue for the Assembly is Environment. It presents the greatest opportunity for ICAO to demonstrate global leadership. That is what the drafters of Kyoto expected when they charged ICAO to align international aviation with the goals of the Protocol. While the CAEP process has delivered on the technical side, political decisions have not kept pace with political reality. Europe is already planning its own emissions trading scheme for airlines while major infrastructure projects that could improve our industry's environmental performance have not gathered the political will to move forward—the Single European Sky among them.

At the IATA Annual General Meeting in June 2007, I outlined a strategic vision for aviation based on achieving carbon neutral growth leading to a carbon-free future. In the first stage a combination of fleet renewal, operational efficiencies and infrastructure improvements are the basis of a solution. Economic measures can play a limited role once we have exhausted all other possibilities. Beyond that, the long-term solutions will be found in technological innovation—where aviation's track record exceeds almost any other industry.

This vision will only become a reality if it is shared by governments and implemented with global standards. We are calling on this Assembly to endorse this vision and set some challenging targets for governments and for industry to move us forward. This includes a firm commitment from governments to develop a global opt-in emissions trading regime that is fair and effective.

Aviation's global CO_2 emissions contribute 2 per cent of the man-made total. Airlines are taking their environmental responsibility seriously. Despite an expected growth rate of 5 per cent, the Intergovernmental Panel on Climate Change estimates that our contribution to CO_2 emissions will be limited to 3 per cent by 2050. Our target is to reduce that to zero. If the Assembly can achieve a harmonized global approach, I am absolutely convinced that the target is achievable. ■

Editor's note: Text submitted prior to the Assembly. Please watch for a full review of Assembly decisions and their implications in Issue 05 of the *Journal*, to be distributed December 2007.

CEIA EMDs

STATE-OF-THE-ART ENHANCED METAL DETECTORS

An ISO 9001 Company

CEIA EMD application

- Fully compliant with the New Security Standards for Conventional and non-Conventional Weapons
- Unsurpassed Passenger Throughput
- Exceptional Immunity to Environmental Interference

UNI EN ISO 9001 CERTIFIED

www.ceia.net/emd

AMHS
in Latin America

by RADIOCOM

is growing!

Welcome!

After one year of safe AMHS communications in Argentina, we are very proud to add: Paraguay, Guayaquil Airport (Ecuador) and CIPE Training Center (Argentina) to the increasing list of AMHS users.

Paraguay

36 AFTN/AMHS User Agent Terminals

6 Airports

Guayaquil Airport (Ecuador)

CIPE Training Center (Argentina)

Argentina

163 AFTN/AMHS User Agent Terminals

73 Airports

Fully Compliant ICAO SARPs

TAU Terminal AFTN/AMHS Universal

<ComGate> AFTN/AMHS Gateway

Application Software developed under ISO 9001:2000 Certification

SGS

Radiocom, Inc.

P.O. Box 52-1345 Miami, FL. 33152 - U.S.A.
radiocominc@radiocominc.com www.radiocominc.com